



**Navy J MPS**  
**Technical Interchange Meeting**  
**15-17 June 04**





# Welcome



- **Heads**
- **Phone # for messages**
- **Turn off cells**
- **Cost of coffee etc.**



# Agenda for the Week



## Tuesday, June 15<sup>th</sup>

- 0800 Admin Remarks
- 0815 PMA Opening Remarks
- 0830 Program Overview
- 0900 System Engineering
- 1000 Requirements
- 1200 Lunch
- 1300 Discrepancy Reporting
- 1600 Wrap up

## Wednesday, June 16<sup>th</sup>

- 0730 Admin Remarks
- 0800 IT&E
- 1000 User Advisory Group
- 1200 Lunch
- 1300 Change Management

## Thursday, June 17<sup>th</sup>

- 0730 Admin Remarks
- 0800 Logistics
- 0900 UPC Forum
- 1200 Lunch
- 1300 Independent Review
- 1500 Wrap up



# **Purpose of this TIM**

- **Review the JMPS Processes**
  - Due to setback with JMPS 1.1 OT, PMA281 has been analyzing the systems engineering, integration and test processes to determine where improvements are required.
  - UPCs need to review the JMPS Processes, provide feedback, and support their implementation.
- **Support an Independent Review**
  - AIR 4.1 has commenced an independent review of the JMPS processes to ensure our collective success. They will report their findings to the PEOs
- **Reinforce PMA281 as JMPS SYSTEM Integrator**
  - PMA-281 has the responsibility to ensure that system-wide SEIT processes are utilized to provide success to JMPS and the programs that are dependent on JMPS.
- **This review is supported by PEO & PMA Leadership**
  - Any significant issues that cannot be addressed here, please address via the JMPS Leadership Team (JLT).



# Our Past



- **Schedule driven program, but haven't met schedules**
- **Over budget**
- **Haven't met performance thresholds**
- **Worked towards the big bang theory for release instead of spiral/evolutionary**
  - **MPEs (F/A-18 vs E2C)**
  - **HW Configurations (client/server vs workgroup)**
  - **Testing (milestones vs continual/iterative)**
- **JMPS IPT only controlled FW anomalies**
- **Struggled with no system-wide problem report DB**
  - **No insight into system problems/maturity**
  - **Trust, but no verify**
- **Asked UPCs for compliance and hoped it worked**
  - **Come test in our environment...please**
  - **Can I ask about your UPC problem reports, is that OK?**
  - **The system does not work, how do we get the UPCs to help?**



# **Our Present**



- **Examining processes to ensure near-term success**
- **Schedule Realism vs Schedule Driven**
- **Guided by Data vs Emotions**
  - Map DRs by MPEs
  - Reliability - Performance Working Group
  - KPPs - Metrics and Weekly Integration System Checks
  - HMI - User Advisory Group
    - Pri 2s, BSI#2 anomalies, and Grey Outs
  - System ‘Must-Fix’ DR list - includes UPC anomalies
  - Traceability to documented requirements



# Our Future



- **Our new approach**
  - **MPE Spiral release focus**
  - **Manage requirements and anomalies at the system level**
  - **Perform JMPS MPE compliance testing prior to milestone events**
  - **Ensure process supports continual user involvement**
    - Improved DT/OT teaming
  - **Test in a centralized operationally representative test environment**
  - **Put more rigor into our DR process**
    - Peer reviews
  - **Focus on the documented requirements**
    - Control requirements creep, proceed to spiral concept
  - **Conduct TIM's for “one story” as we proceed towards successful MPE releases**



# **Immediate Way Forward**

- 1. Improve System Stability**
- 2. Meet or exceed KPP thresholds**
- 3. Correct HMI issues that affect thresholds**

- If an MPE cannot meet effectiveness & suitability thresholds due to HMI issues, we will then correct the HMI DRs necessary to meet E&S thresholds.**

- 4. Iterative MPE releases**

- E-2C MPE**
- AV-8B MPE**
- F/A-18 MPE**
- EA-6B MPE**
- V-22 MPE**

- 5. Navy-Centric...we'll focus on Service Enterprise processes when appropriate.**



# Recommendation (fm 13 May 04 TIM)

- ✓ **Formalize the JMPS Leadership Team**
- ✓ **Establish a JMPS Focus Group (*this TIM*)**
- **Address process shortfalls**
  - a) **Brief the processes,**
  - b) **Gather feedback and modify processes as required,**
  - c) **Implement the processes system wide**
  - d) **Establish metrics to measure process success,**
  - e) **Monitor and update processes guided by metrics supported data**



# **Independent Review**

- **Requested by PEOs**
- **Endorsed by PMAs**
- **Led by Mr. Steve Kracinovich**  
**(APEO (W) SE and AIR-4.1 SE)**
- **Non-invasive approach - not an “all-stop”**  
**Phased approach**  
**Interviews and observations**  
**In progress - Working Groups & JLT**  
**reviews/participation**
- **Your support needed**

A large American flag is draped across the top half of the slide. Below it, a dark aircraft carrier with the number "68" on its bow is sailing on the ocean. Several fighter jets are visible on the flight deck. The sky is overcast.

## ***What are we doing now?***



# ***Focus Shift***

## ***Mission Planning Environment (MPE)***



- **Manage JMPS via MPEs**
- **Each MPE has its own set of requirements**
- **JMPS is a family of MPE's**
  - **E-2C MPE**
  - **AV-8B MPE**
  - **F/A-18 MPE**
  - **EA-6B MPE**
  - **And so on.....**



# **Process Evaluation**

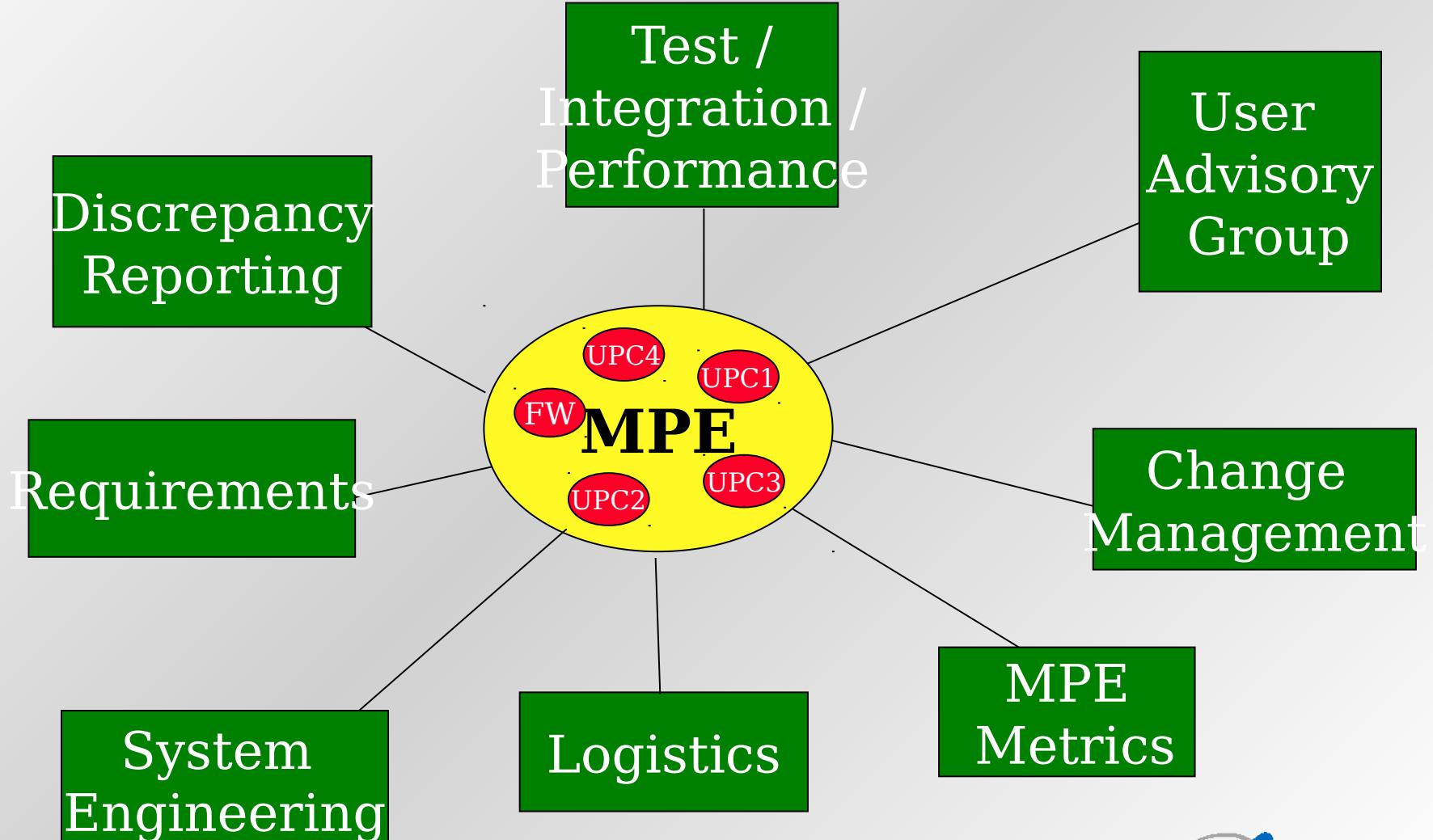
**(Based on MPEs)**

- **Leadership**
- **T&E**
- **System DRs**
- **User Interface**
- **Systems Engineering**
- **Requirements**
- **Performance**
- **Integration**
- **System Metrics**



# **MPE Integration**

## **PMA281 Responsibility**



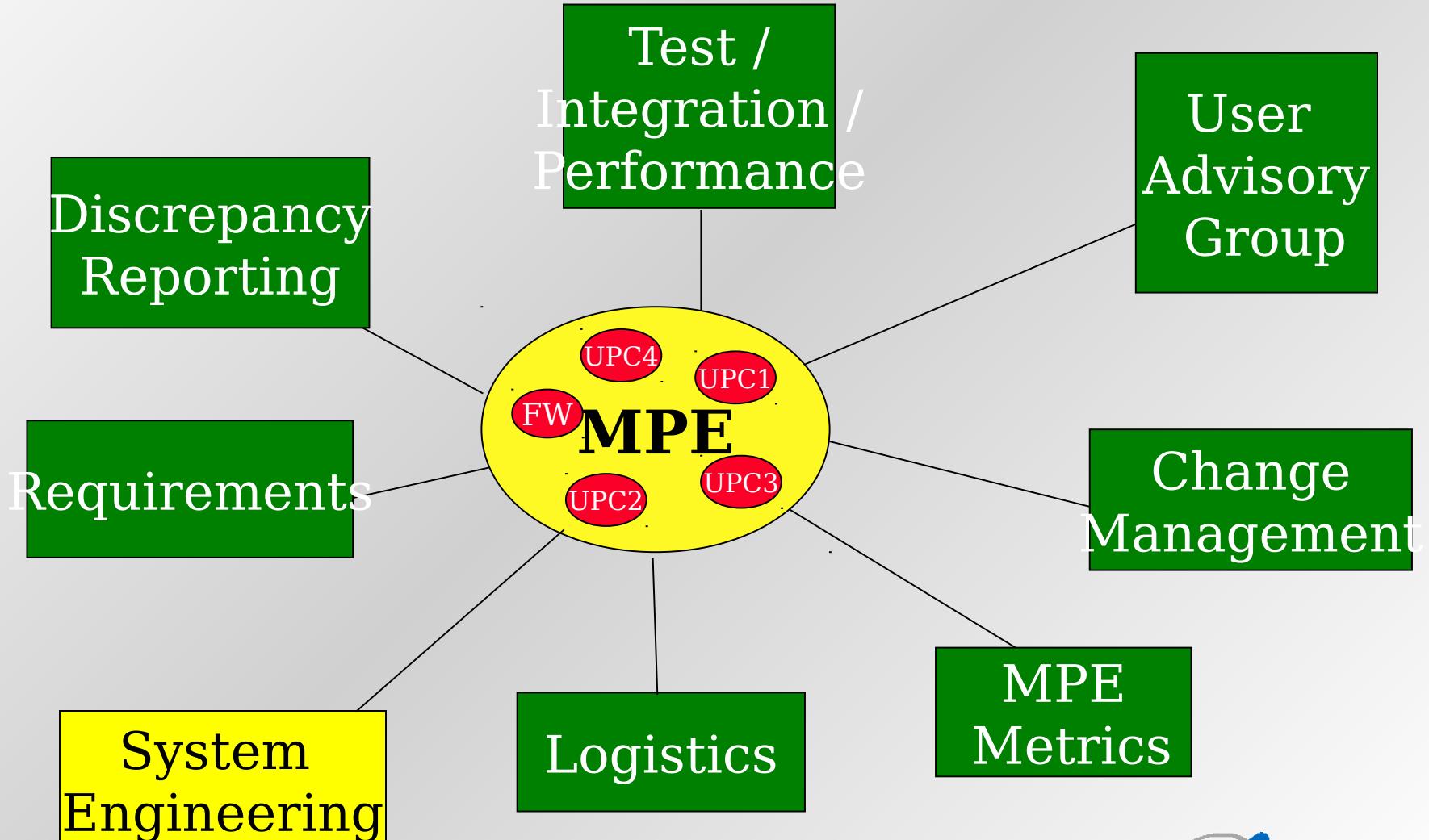


**Questions?**



# **MPE Integration**

## **PMA281 Responsibility**





# SE Challenge



- **Problem statement**
  - Previously designed and implemented all SE processes to facilitate
    - Multiple Platform Mission Planning Environments
    - All released at single point in time
    - In a complex Client/Server configuration
    - Framework with UPCs vice total system
- **Solution: Shift to MPE-Based approach**
  - Based on our current experience
  - Increasing JMPS complexity
- **Goal is to establish a set of processes to be used by all MPEs**

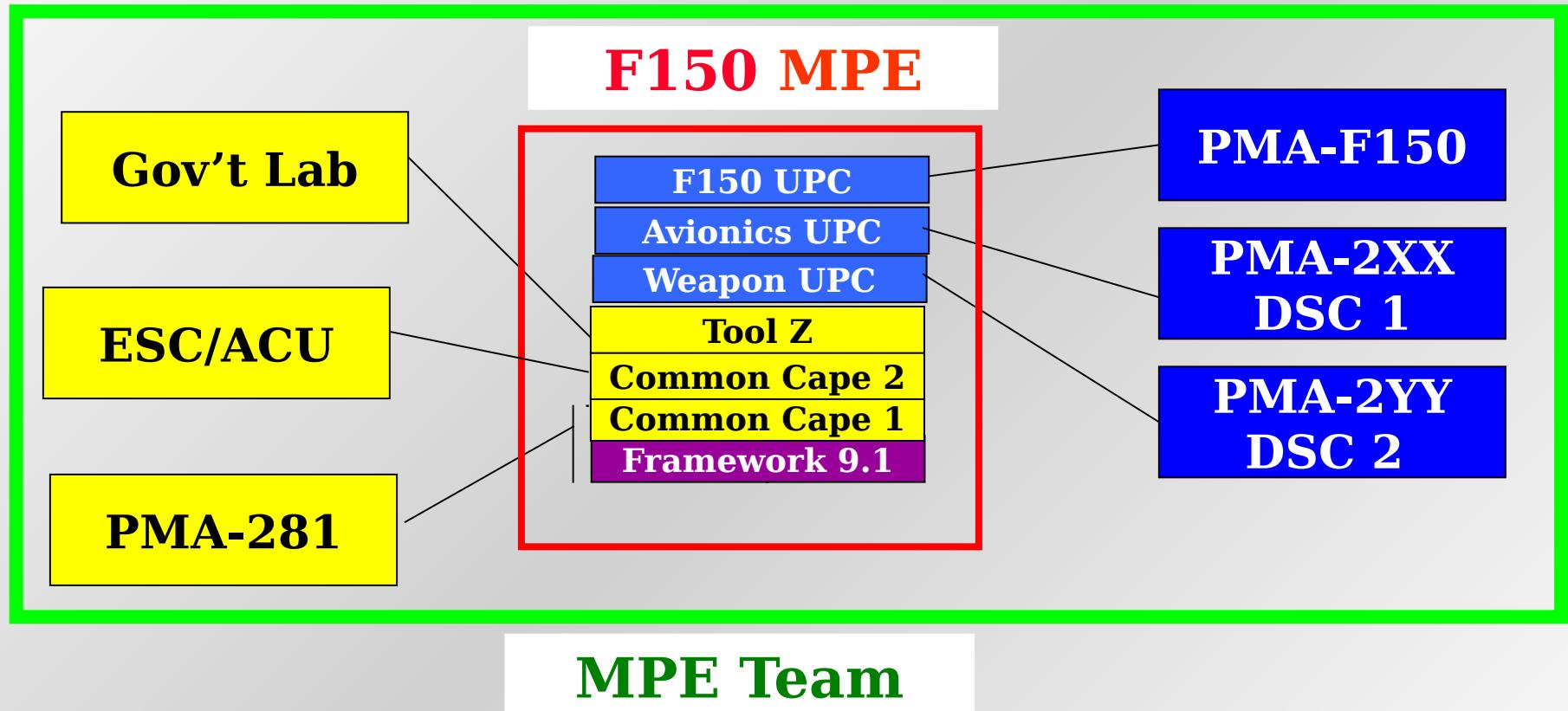


# What is an MPE?

- Not just a collection of software
- Integrated software and hardware system to support a platform's combat capability
  - Could involve multiple UPCs
  - Could involve multiple PMAs
  - Individual development timelines
  - All fielded as composite system that appears to the Mission Planner as single application



# Mission Planning Environment





# **Mission Planning Environment Approach**



- **Not stopping the train, real-time process analysis and modification**
- **MPE Team determines when each MPE is ready to enter OTRR. Based on:**
  - **Meets MPE defined requirements document**
    - Meets ORD(s) requirements (Stability, KPPs and HMI)
    - Meets effectiveness and suitability thresholds
  - **Within a defined configuration(s) (i.e., client/server, workgroup, standalone)**



# ***Mission Planning Environment Approach***



- **Manage by Mission Planning Environment**
  - **MPE Team**
  - **JMPS Leadership Team**
    - Programmatic issues will be resolved by the JLT (if necessary)
- **System Engineer by Mission Planning Environment**
  - **Focus the following areas by MPE:**
    - Requirements
    - Discrepancy Reporting
    - Test & Integration
    - User Advisory Group
    - MPE Management
    - Metrics
    - Logistics

**Changing the way we do business**



# Process Considerations

- **All processes will account for the following:**
  - Schedule
  - Iterative Reviews
  - User Involvement
  - Integration of Processes
  - Cost/Resource Impacts



# **MPE Schedule**



- **Each MPE shall have a schedule and will contain the following**
  - **Milestone events leading to OTRR and Deployment**
    - Duration of each event
  - **FW and UPC interdependencies for the milestones identified**
  - **Critical Path Identified**
- **MPE Lead will produce and update the MPE schedule**
- **PMA281 will produce a master schedule with all MPEs**

No high risk schedules without PMAs endorsement



# Notional MPE Integration Schedule



ID	Task Name	Start	Finish	Predecessors	May 2, '04	May 9, '04	May 16, '04	May 23, '04	May 30, '04	Jun 6, '04	Jun 13, '04	Jun 20, '04	Jun 27, '04	Jul 4, '04	Jul 11, '04	Jul 18, '04	Jul 25, '04	Aug 1, '04	Aug 8, '04
					5/2	5/9	5/16	5/23	5/30	6/6	6/13	6/20	6/27	7/4	7/11	7/18	7/25	8/1	8/8
1	<b>Development</b>	<b>Mon 5/3/04</b>	<b>Fri 5/28/04</b>																
2	JMPS 1.1 Build 4314 Development	Mon 5/3/04	Wed 5/26/04																
3	Deliver to government	Wed 5/26/04	Wed 5/26/04																
4	Prepare build for CM	Thu 5/27/04	Thu 5/27/04																
5	Release JMPS 1.1.4400 for Test	Fri 5/28/04	Fri 5/28/04																
6	<b>Development Test</b>	<b>Mon 5/24/04</b>	<b>Thu 7/22/04</b>																
7	Installation	Tue 6/1/04	Wed 6/2/04																
8	Quick-Look Tests	Wed 6/2/04	Thu 6/3/04																
9	<b>Framework DR Verification</b>	<b>Wed 6/2/04</b>	<b>Fri 6/11/04</b>																
10	Functional DR's	Wed 6/2/04	Tue 6/8/04																
11	Gray-Out DR's	Tue 6/8/04	Fri 6/11/04																
12	Regression	Mon 6/14/04	Fri 6/25/04																
13	Framework Readiness Review	Thu 6/17/04	Thu 6/17/04																
14	E-2C MPE Integration Testing	Thu 6/17/04	Thu 7/8/04																
15	E-2C Test Report	Fri 7/9/04	Fri 7/16/04																
16	Gold CD Rcvd	Mon 7/19/04	Mon 7/19/04																
17	Gold CD Quick-Look Tests	Tue 7/20/04	Thu 7/22/04																
18	MPE Readiness Review	Thu 7/15/04	Thu 7/15/04																
19	DT Report	Mon 5/24/04	Thu 7/22/04																
20	Test Planning Working Group	Wed 7/28/04	Thu 7/29/04																
21	Pre-OTRR	Wed 8/11/04	Wed 8/11/04																
22	OTRR	Thu 8/26/04	Thu 8/26/04																

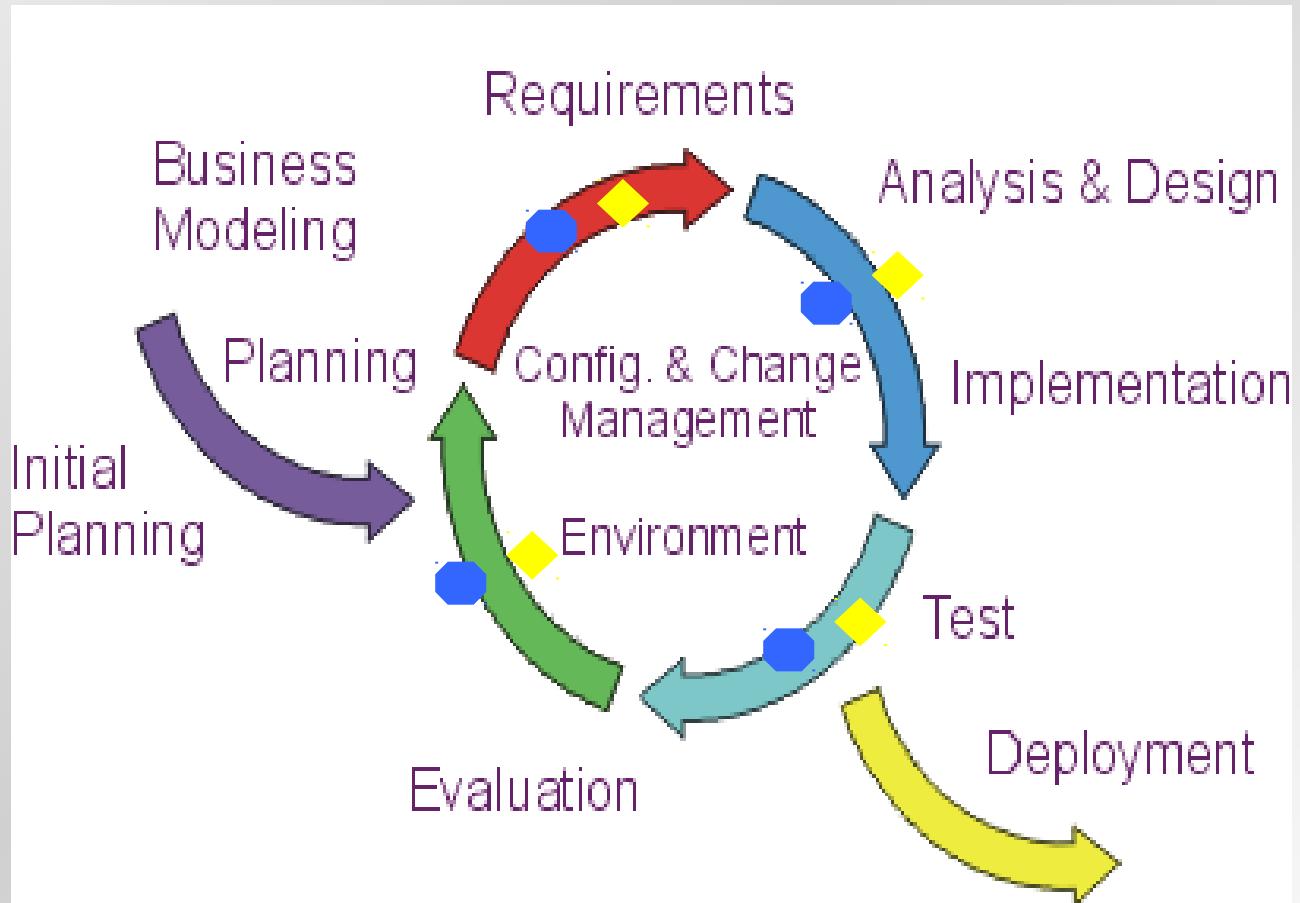


# Iterative Review Process

- Focused reviews for SE and Users
  - Not a PMR
- MPE reviews to include
  - Requirements
  - Build changes
  - DR fixes
  - Design
  - All software



# System Engineering Iterative MPE Reviews



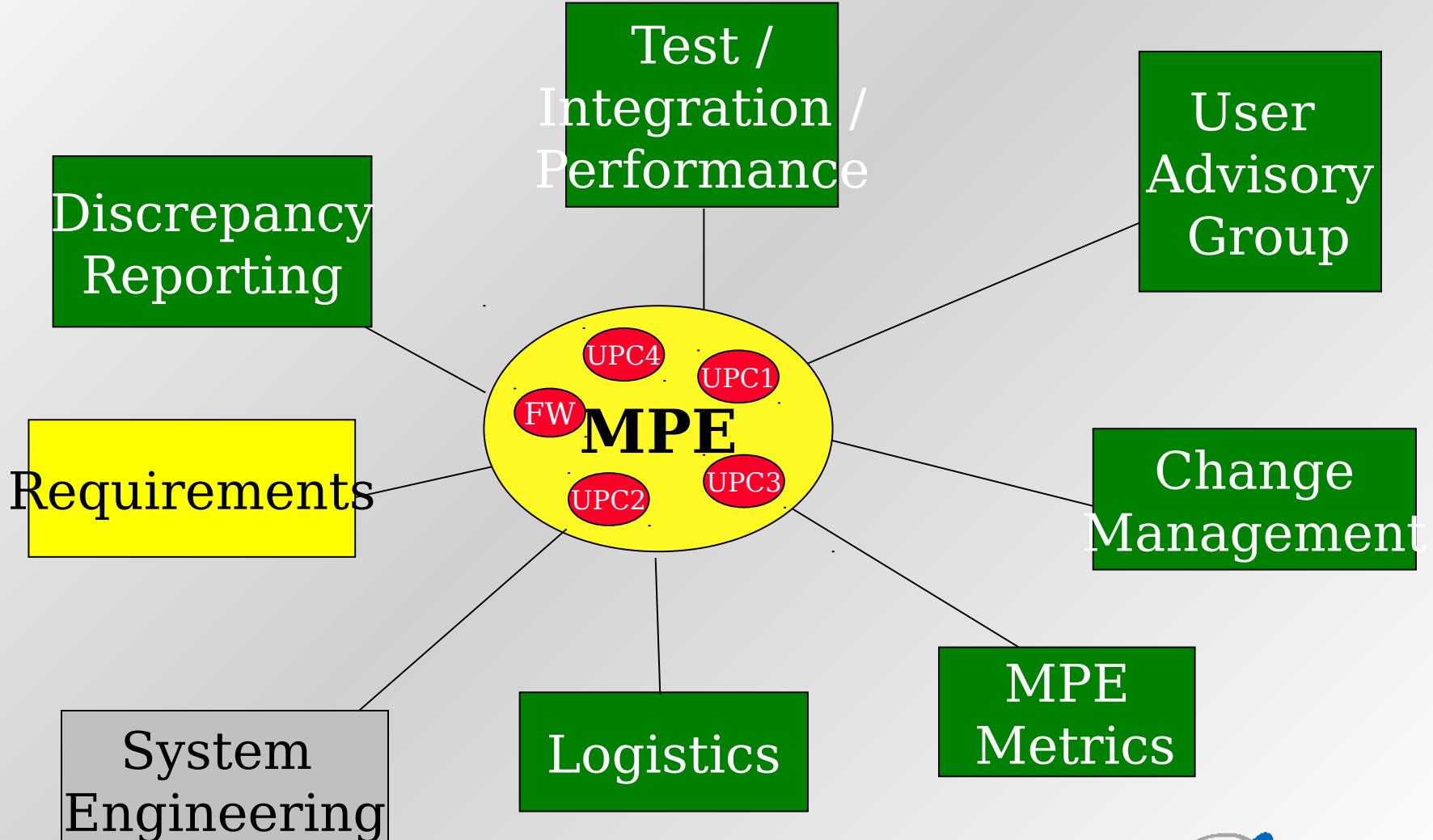


**Questions?**



# **MPE Integration**

## **PMA281 Responsibility**





# Assumptions:

- PMAs requirements process works
  - Requirements managed effectively within each PMA
  - Requirements not managed effectively between PMAs
- All PMAs that build a piece of an MPE are co-dependent for MPE success
- MPE release will change during development
- All stakeholders will help manage MPE
  - Stakeholders include: Sponsors, developers, PMA management, testers (OT & DT), project officers, and fleet user reps



# Perceived Problem Areas



- **Sponsors/PMAs buy-in to overall MPE build requirements**
- **Lack of MPE-focused requirements document**
  - UPC lack of insight to Framework functionality
  - PMA281 lack of insight to UPC build functionality
  - **Lack of insight to build requirements by the**
    - Users, Testers and Developers
- **OT understanding of ORD/build requirements**
- **Requirements Creep management**
- **Gap between Requirements and Design**



# MPE Requirements Management Process



- **Control** - Provide Requirements management, tracking and control
- **Flexibility** - Allow needed change while protecting against undocumented and/or unattributed requirements creep
- **Verification** - In conjunction with the development and testing process, provide for government reviews

***Modified Process - Redefined Products***



# MPE Requirements Management Products



## Mission Planning Roadmap

??? MPE  
Rel X

**MPE  
Requirements  
Management**

MPE Synopsis  
~ 1 Page

MPE Release Summary Document  
~ 5 - 10 Pages

MPE S OF  
~ 50 - 100 Pages

FW SSS  
PMA 281

Platform UPC Req Doc  
PMA XXX

Weapon UPC Req Doc  
PMA XYZ

Equipment UPC Req Doc  
PMA ABC

**PMA Requirements Management**



# **MPE Requirements Management Products**



## **1. MPE Release Synopsis**

- Extracted from mission planning roadmap**
- High-level description of what capabilities are in an individual MPE release**
- Signed by the PMAs and their Sponsors**
- ~ 1-2 pages**
- Periodic Reviews**



# **MPE Requirements Management Products**



## **2. MPE Release Summary Document**

- Traceable to the MPE Release Synopsis**
- Detail should be at the big “R” requirements level (reference or re-state ORD shall statements, MOE/MOS/KPP)**
- Allocates responsibility for requirements**
- Allocates performance budgets**
- Signed by PMAs or designated rep**
- 5-10 pages**
- Periodic reviews**



# **MPE Requirements Management Products**



## **3. MPE Release Statement of Functionality**

- Release Summary is outline for this document (traceability)**
- Covers the entire MPE at the level of little “r” requirements / implementations**
- CONOPS / Scenario**
- Basis for all MPE testing, “must fix” determination, et al.**
- Signed by class desks**
- Final version signed by OT representative to acknowledge understanding**
- Final SOF part of entry criteria for OTRR**
- 50-100 pages**
- Periodic reviews**



# MPE Requirements Management Products



## Mission Planning Roadmap





# 0.0 MPE Roadmap

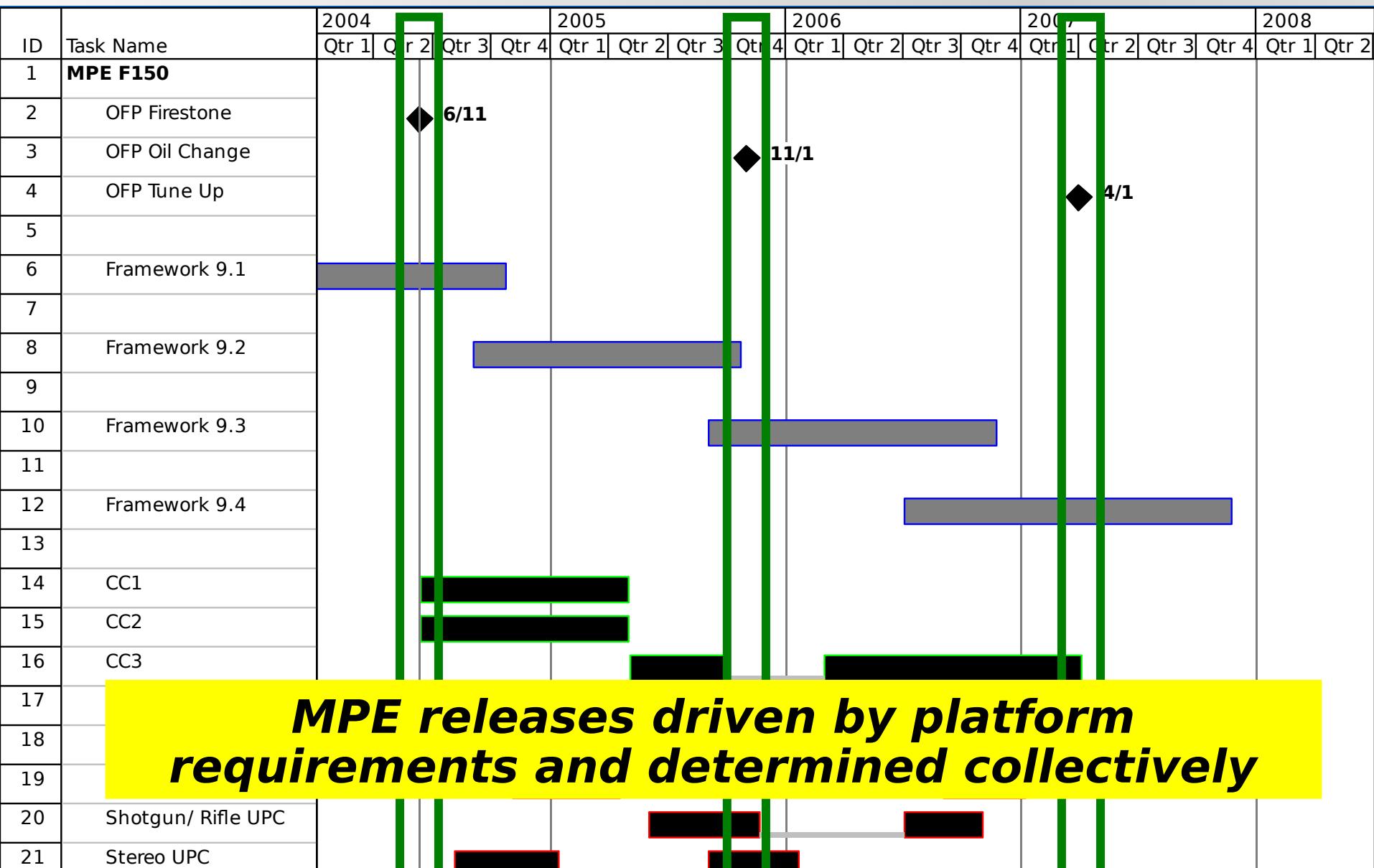
- All PMAs provide need dates of program changes that require mission planning
- PMA 281 will consolidate this information
  - into an overall MPE Roadmap
  - with schedule and intent
- The roadmap will be updated to ensure that it reflects the latest information
- Using the inputs to the Roadmap, PMA-281 sets an appropriate date to kick off MPE Team

***To ensure success***

***Roadmap generation must be on-going process with information flowing as early as possible***

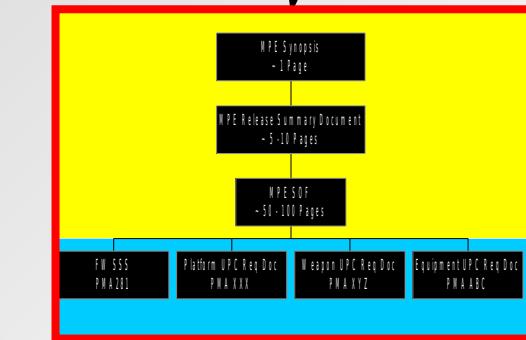
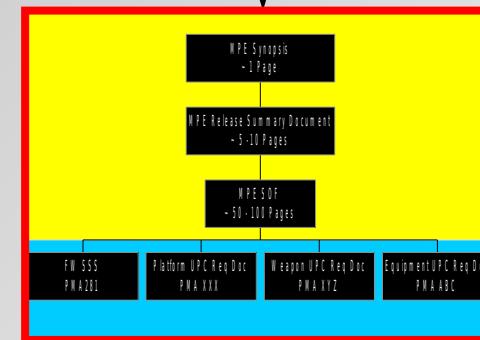
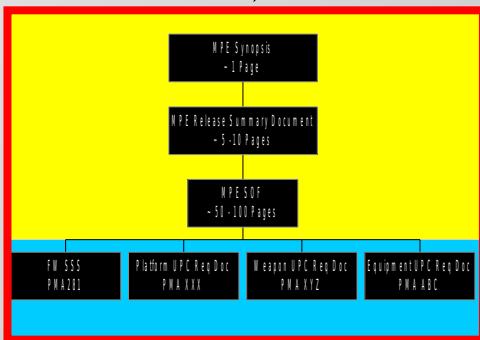
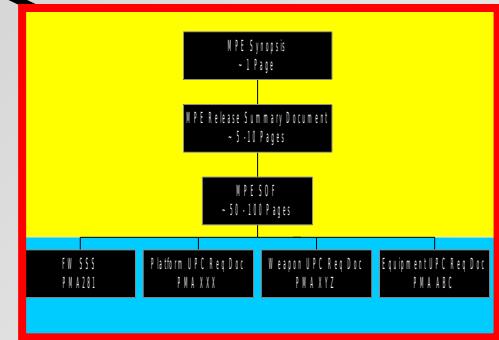
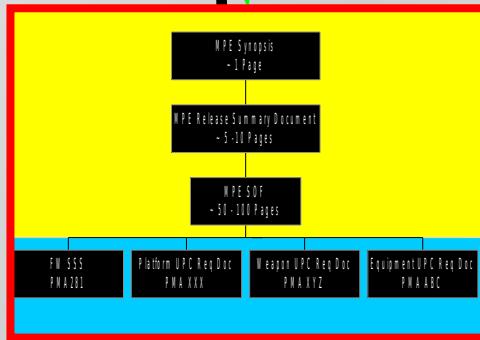
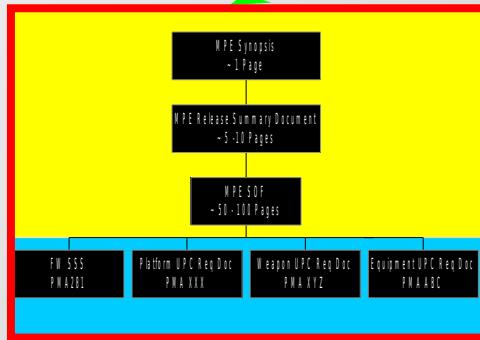
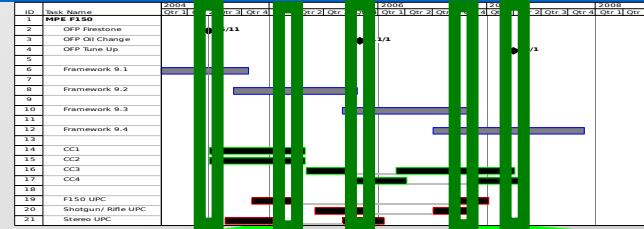


# Roadmap Concept



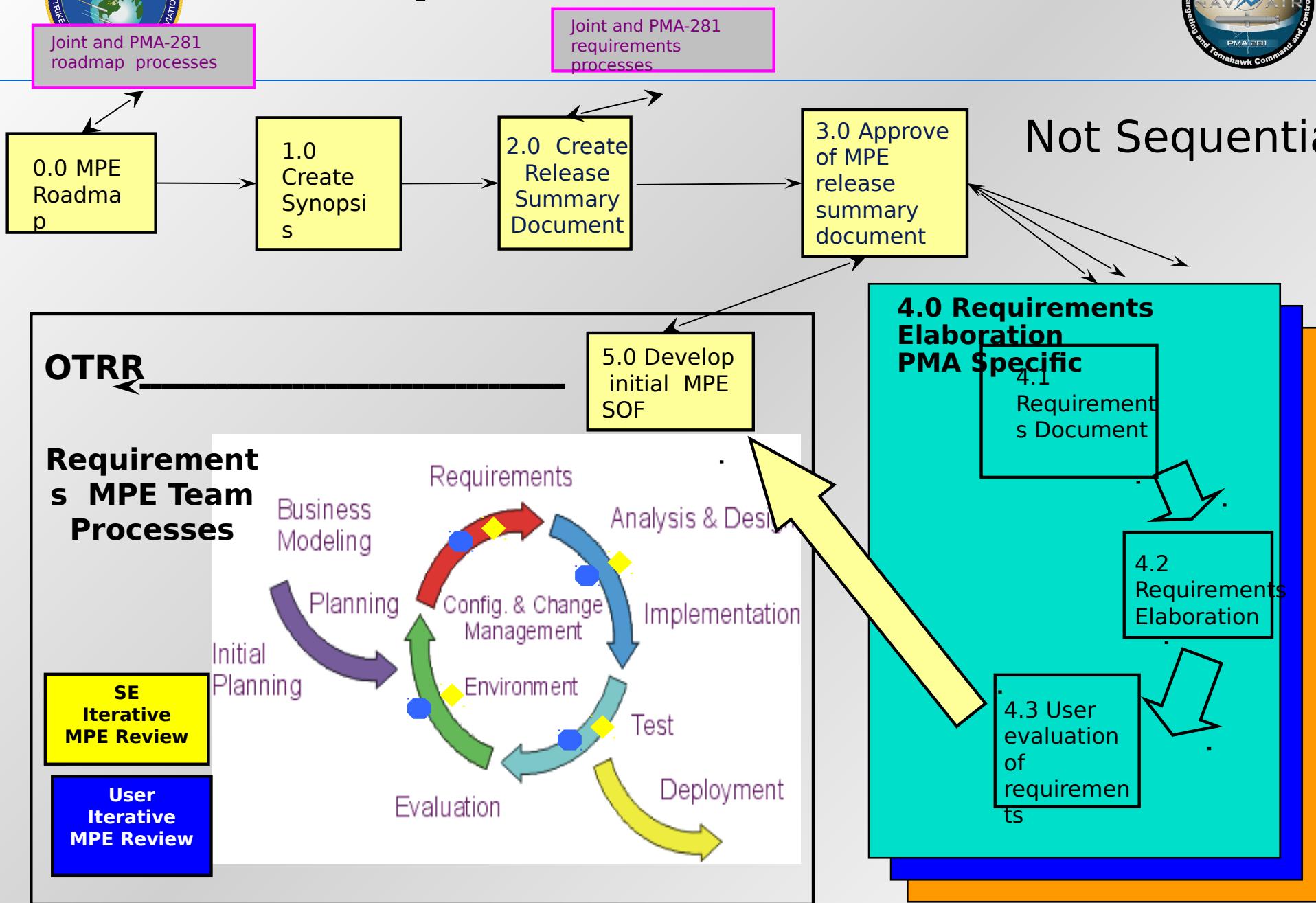


# MP Roadmap to MPE Releases



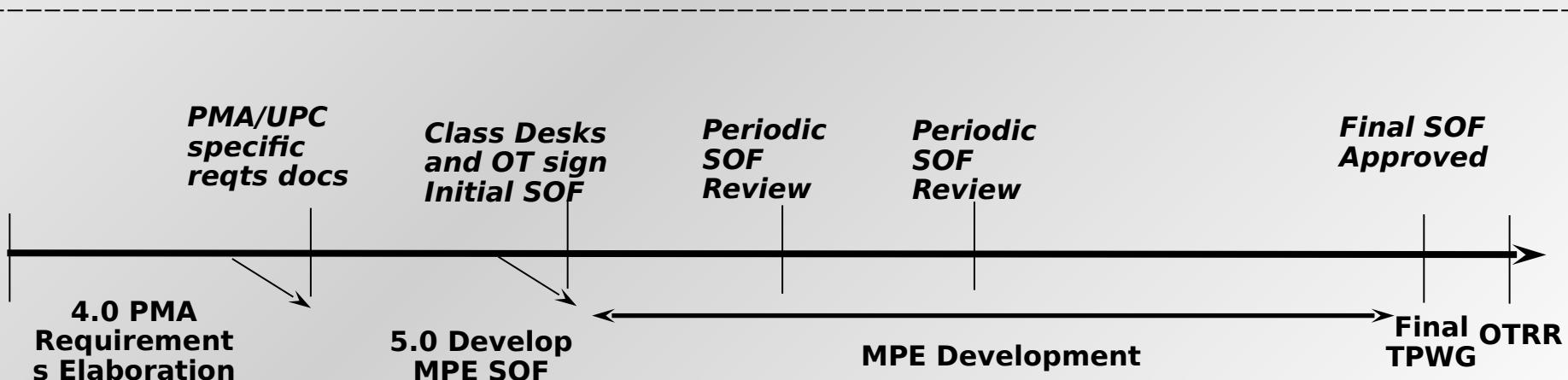
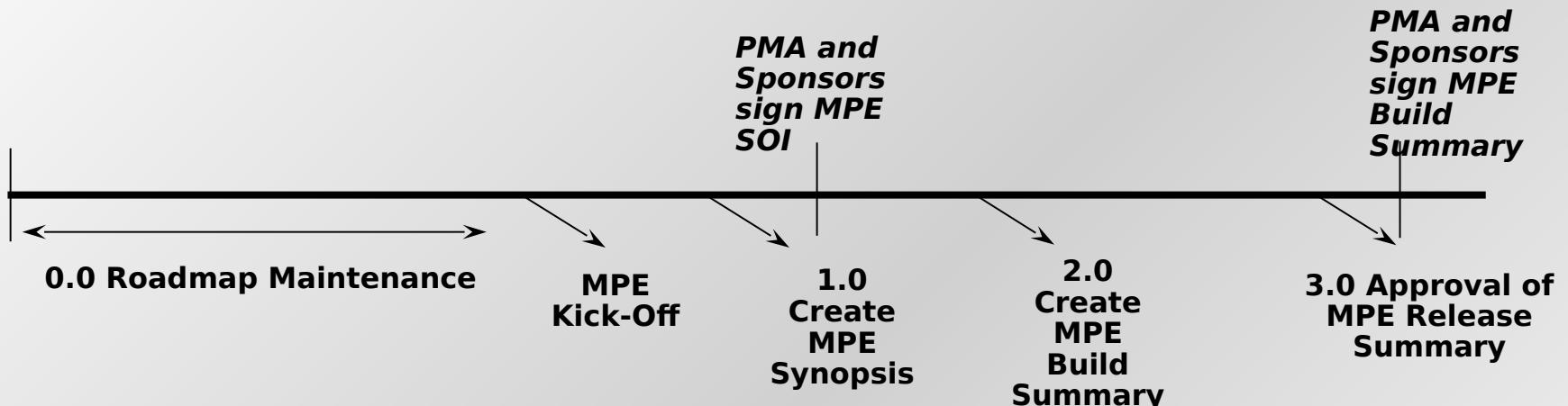


# **MPE Requirements Document Flow**





# MPE REQUIREMENTS TIMELINE





# **Risks and Questions**

- **Workload** - potential increase, esp. during startup
- **Cost** - nothing is free
- **Tool to use?**



# **Final Thoughts**

- **Way Forward?**
  - **1.1 Benchmark of Requirements**
    - E-2C MPE by 26 August 04?
    - AV-8B MPE by ?? OTRR
    - F/A-18 H2E MPE by ?? OTRR
    - MV-22 OTRR in JAN 05
    - EA-6B MPE by ?? OTRR
  - **1.2.3 Full Process**
- **This is not a future concept - Need to start the Roadmaps NOW**
- **Need to tailor process for near-term MPE releases**

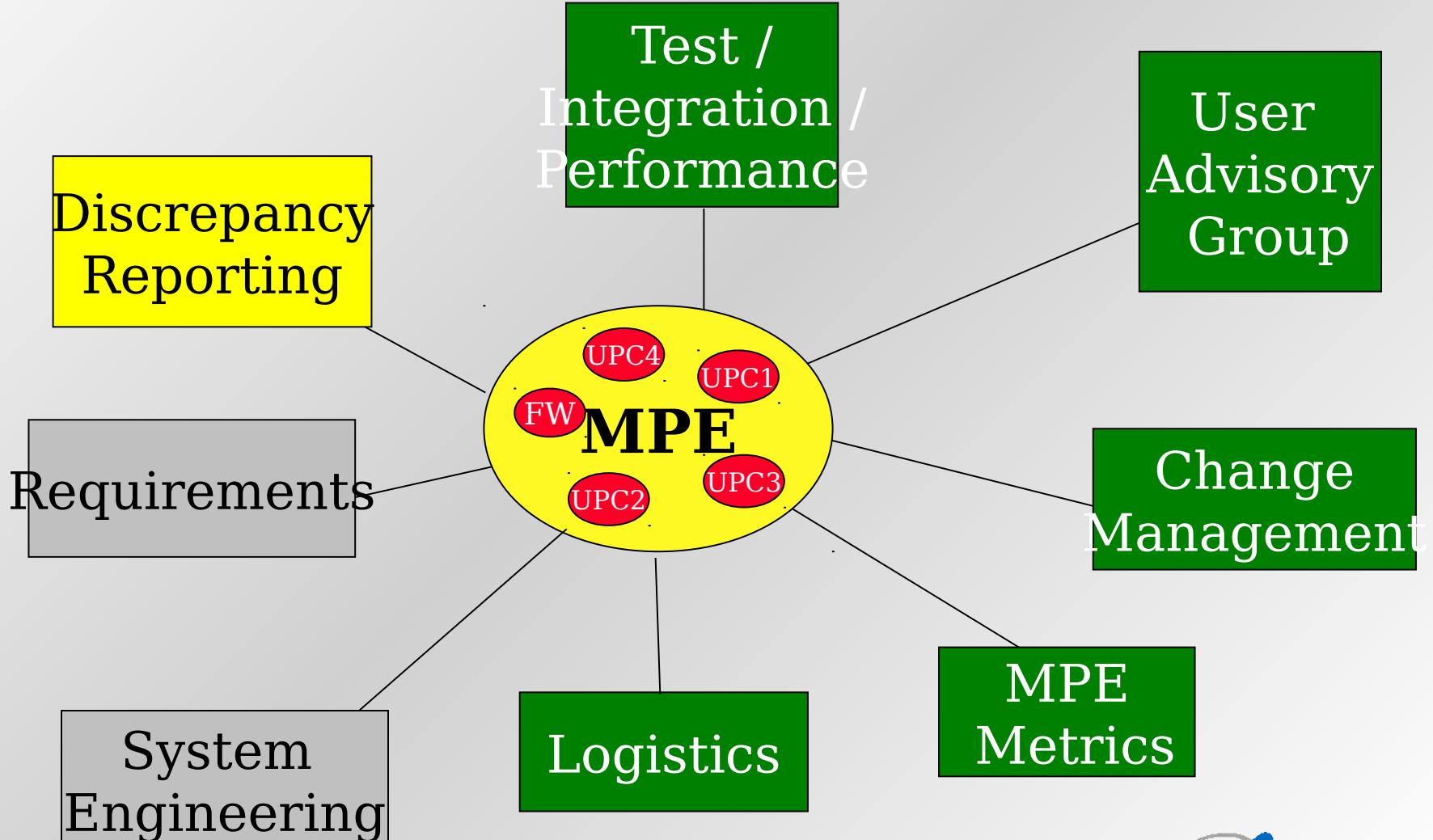


**Questions?**



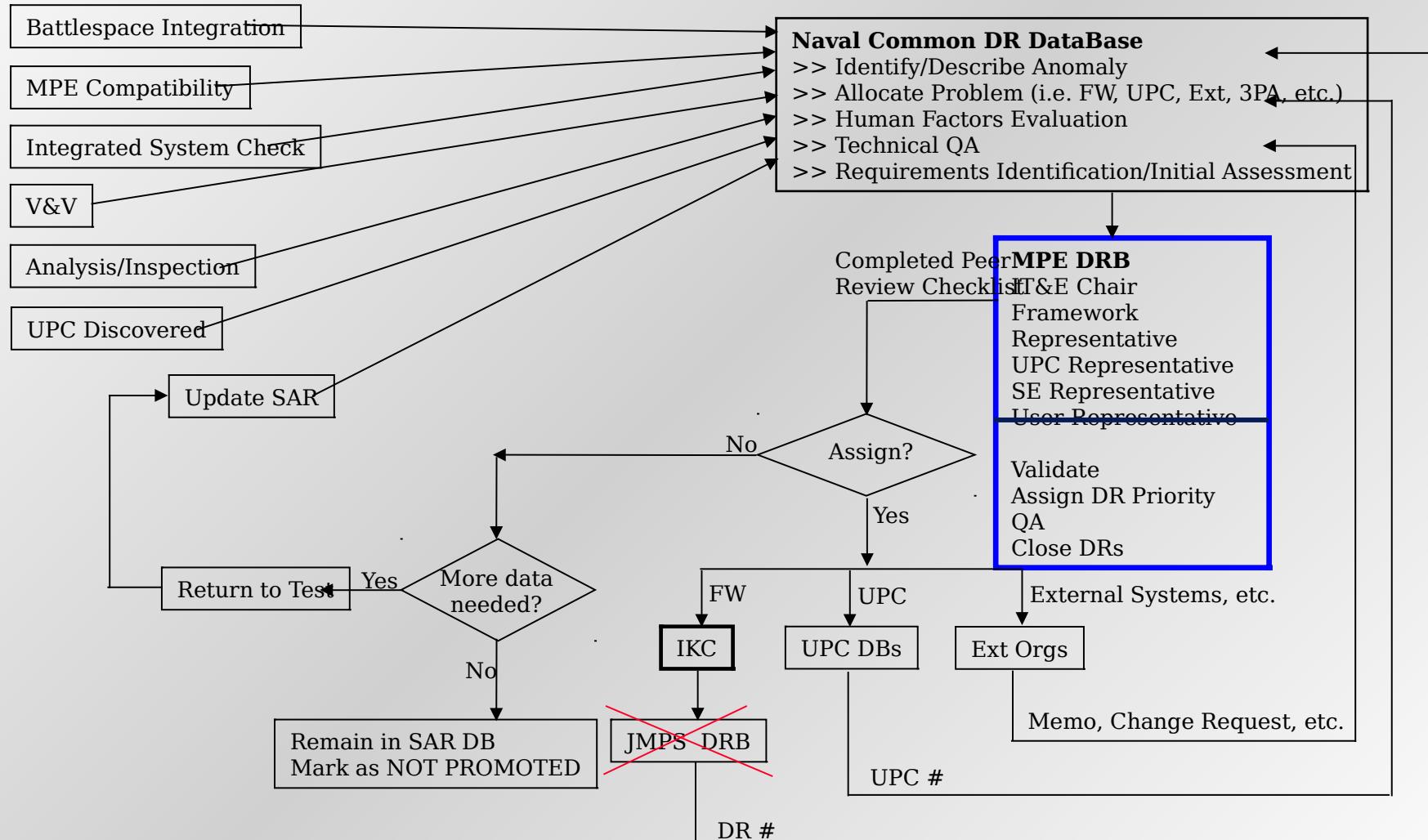
# **MPE Integration**

## **PMA281 Responsibility**





# MPE DRB





**Questions?**



***Start of Day 2***



# Agenda for the Week

## Tuesday, June 15<sup>th</sup>

- 0800 Admin Remarks
- 0815 PMA Opening Remarks
- 0830 Program Overview
- 0900 System Engineering
- 1000 Requirements
- 1200 Lunch
- 1300 Discrepancy Reporting
- 1600 Wrap up

## Wednesday, June 16<sup>th</sup>

- 0730 Admin Remarks
- 0800 IT&E
- 1000 User Advisory Group
- 1200 Lunch
- 1300 Change Management

## Thursday, June 17<sup>th</sup>

- 0730 Admin Remarks
- 0800 Logistics
- 0900 UPC Forum
- 1200 Lunch
- 1300 Independent Review
- 1500 Wrap up



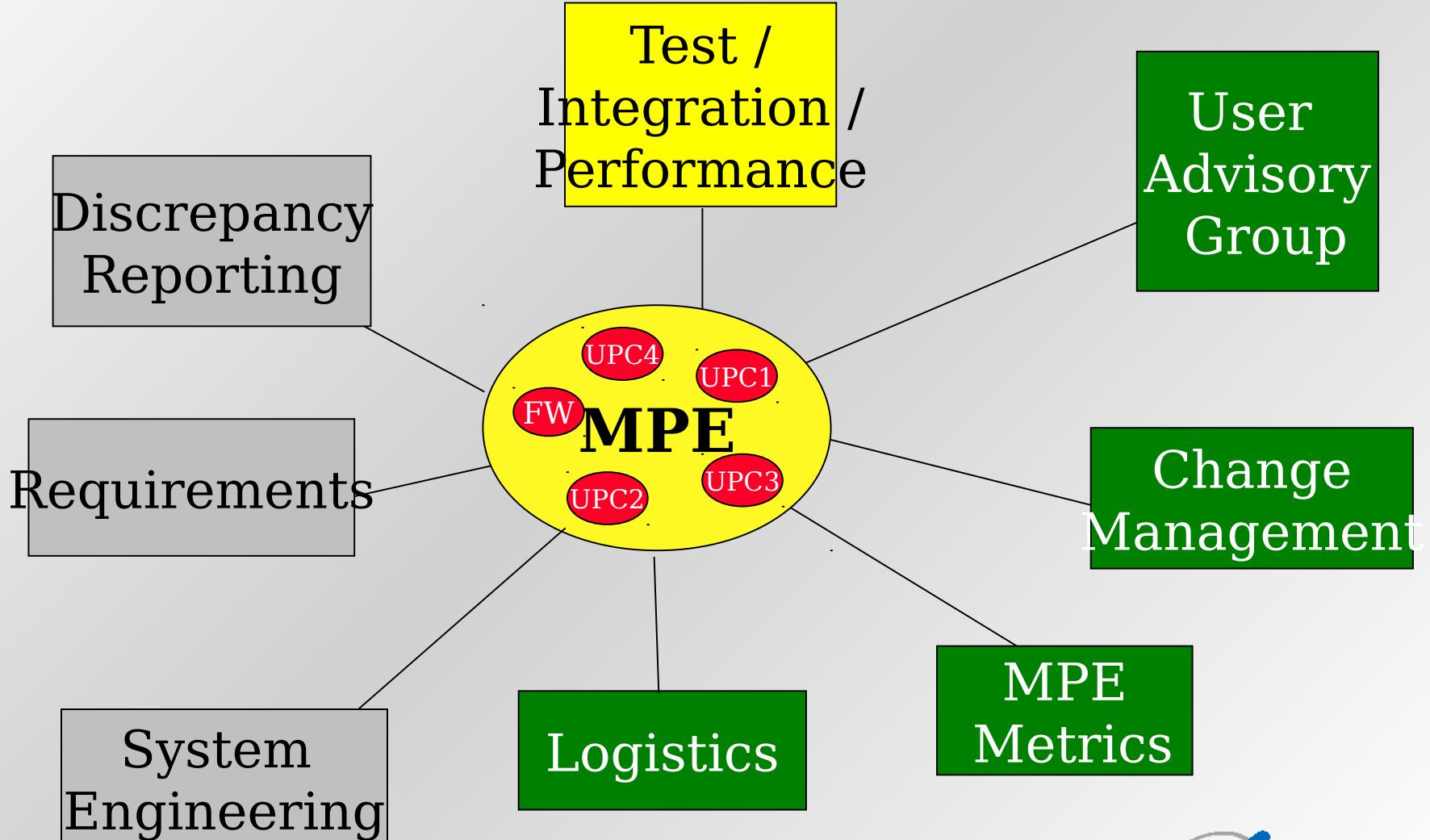
## ***Admin Remarks***

**Recap of Day 1**



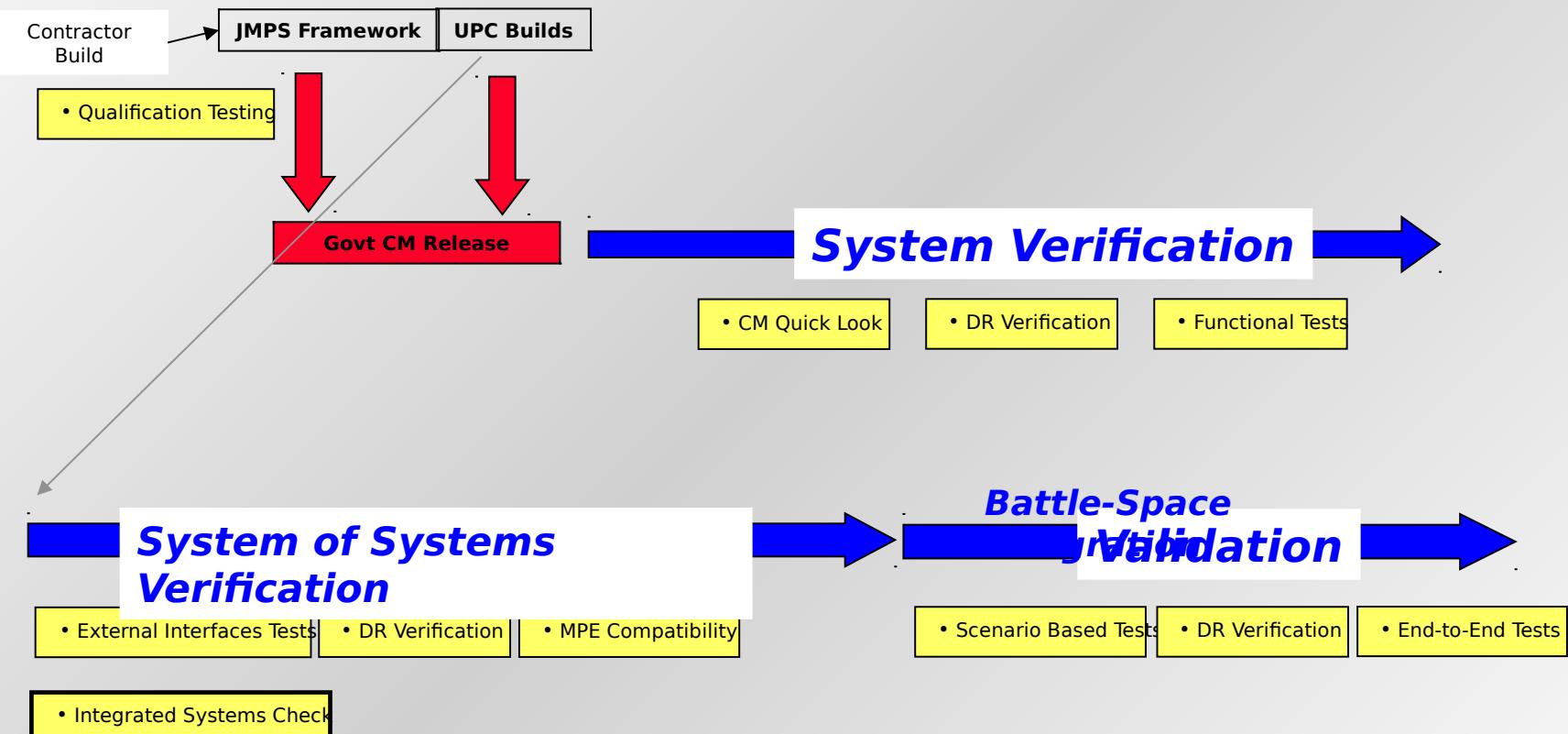
# **MPE Integration**

## **PMA281 Responsibility**





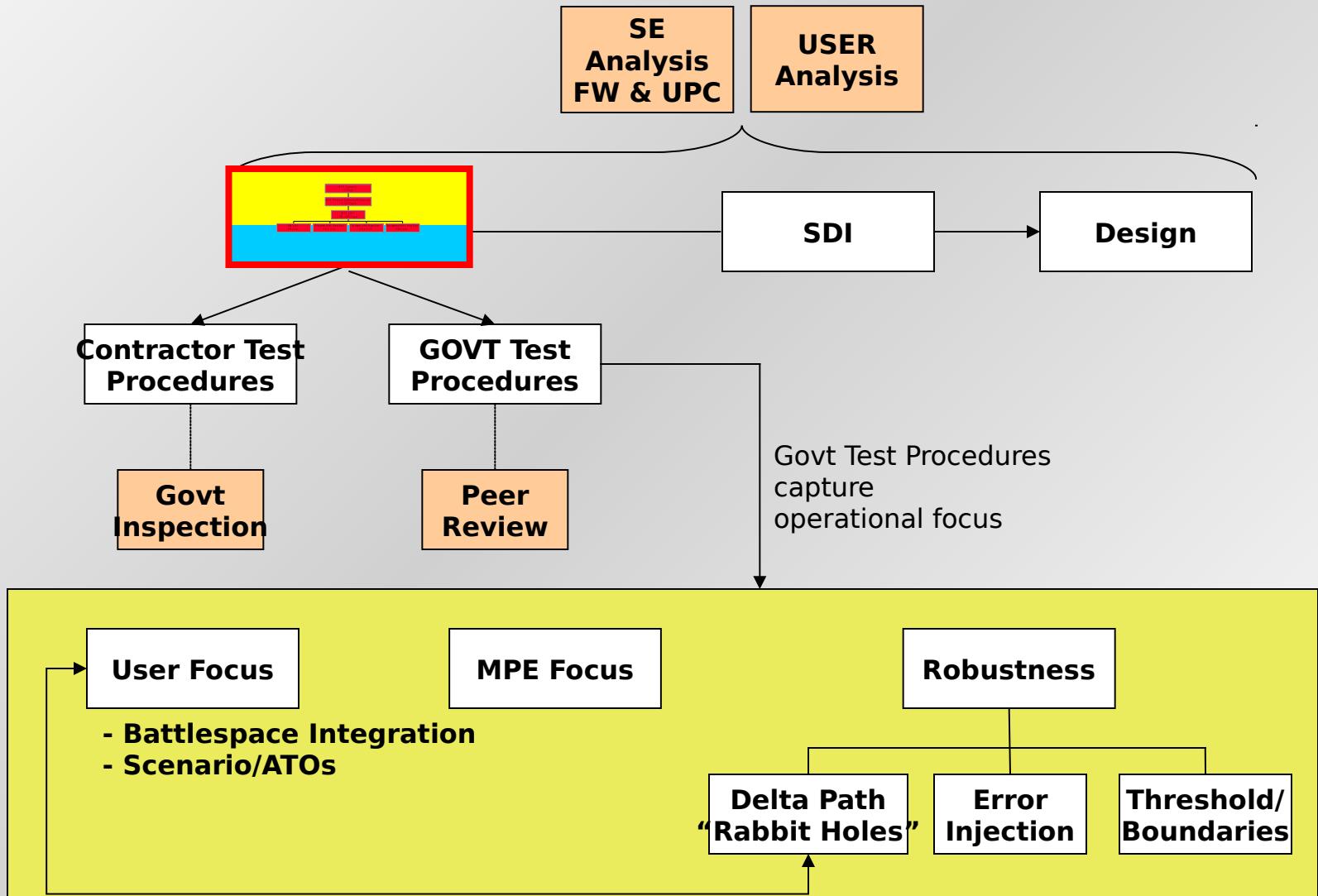
# JMPS MPE DT Phases and Associated Test Activity



UPC Integration now not driven by major events;  
UPCs integrated in the environment all the time with ISC



# Test Traceability from Requirements





# Test Planning and Management



- **Integrated Test Plan (ITP) captures overall test approach and tools**
- **Test Point Matrix tracks:**
  - **Functional Test Procedures**
    - Designed from contractual requirements documents to verify system meets documented requirements
  - **MPE Compatibility Test Procedures**
    - Designed to exercise FW-UPC-UPC integration with external interfaces to systems such as GCCS-M and PTW
  - **Mission Planning Operational Scenarios by SOF/MPE**
    - Designed to validate whether the system meets the user's, i.e. Battlespace Integration events
  - **Integrated Systems Check (ISC) By MPEs**
    - Designed to allow ongoing integration and troubleshooting in a system of systems environment



# Management by Metrics

## (Metrics by MPE)



- **Test Team responsibility is to collect metrics for Management decisions**
- **Test Metrics**
  - **Typical metrics collected:**
    - MPE Stability
      - » MTBF/MTBOMF Mean Time between Failure/Operational Mission Failure (OMF)
      - » Deficiency Reports: Total Open/Closed/WI/Draft, DR Burndown, GIT Rejection Rate
      - » Performance ORD/TEMP: KPPs, CTPs, MOEs, MOSs
      - » Functional Validation: Test Points Pass/Fail/By Analysis
    - MPE Suitability
      - » Installation Time to J-SLIC: Time for Post Installation
    - Program Conduct
      - » Test Event progress, planned vs actual
    - Operational Effectiveness
      - » User evaluations of scenario-based testing, i.e. DT Assist, BI Testing & Suitability
  - **Adjustments made based on collected data**



# Test Point Matrix

- **JMPS 1.1 Master Test Point Matrix:**

- Captures MPE specific test points
- Serves as primary metrics generation tool
- Tracks test execution/program conduct
- Provides risk based management of Test Procedures

June 3-9 (Build 4400)										
Risk Level	Test Procedures									Comment
	Planned test case/procedure	Actual test case/procedure	Actual test case/procedure executed	Estimated completion Hrs	Actual hours	Crashes/Hangs	OMF?	# of failures		
E-2C MPE Cumulative	High				177.25	2	0			
ETIRMS W/E-2C	High				0					
DR verification w/E-2C	High				34.25					
Regression w/E-2C	High				3					Manage GI&S
Validation w/E-2C	High				7					PTW test
Framework Quick look testing W/E2-C	High				0					
UPC E-2C Environment test	High				0					
Adhoc testing due to special investigations	High				9					7 hours IAVA testing, 2 hours general testing
UPC FULL functionality test	High									
Battlespace integ. Test	High									
Additional test events (pop up test requirements)										
OTHER UNPLANNED TEST EVENTS	High									
Some More UNPLANNED TEST EVENTS	High									
3rdPartyApps Testing	High									
Totals		0	0	63	2	0	0	0		



# Improving Integration



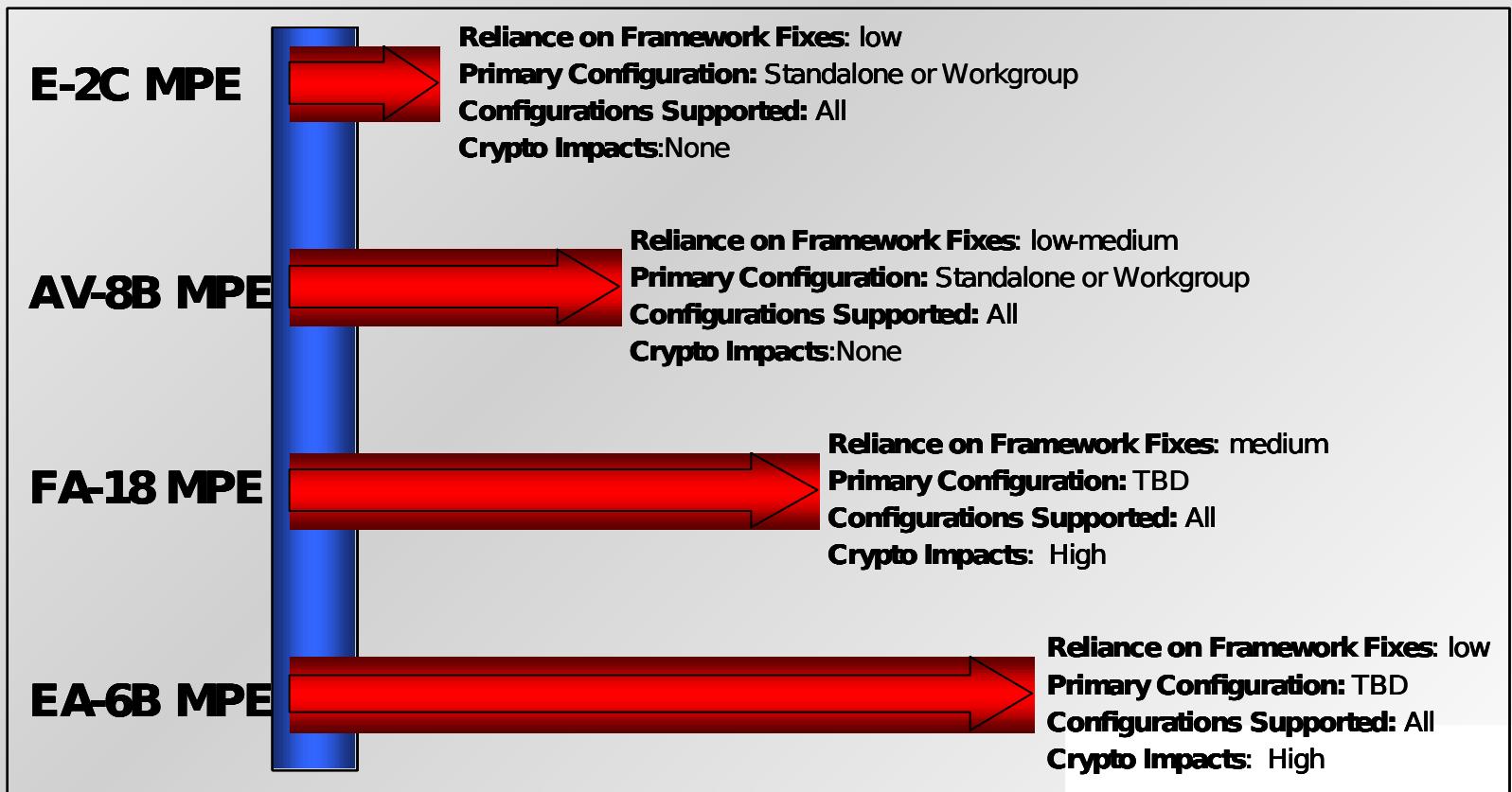
- **Integration needs to occur earlier and often**
  - Configuration Whiteboard controls and documents real-time changes
- **Integrated Systems Check (ISC) will;**
  - Provide an MPE environment and fleet-representative configuration.
  - Fix and test specific DRs
  - Capture new issues
- **Performance metrics and measurements are being captured, for example,**
  - Time to Install
  - Time to Load
  - Memory Usage
  - DR Burn down
  - KPPs
- **ISC starts at the discretion of the MPE Lead**

**ISC is enhancing UPC developer testing, System of Systems Verification, and providing insight to MPE maturity**



# MPE Centric Testing

- The IT&E Lead to tailor test plan for each MPE.
- Testing of JMPS must be performed based on prioritizing those functional tests relevant to the specific MPE to be deployed.



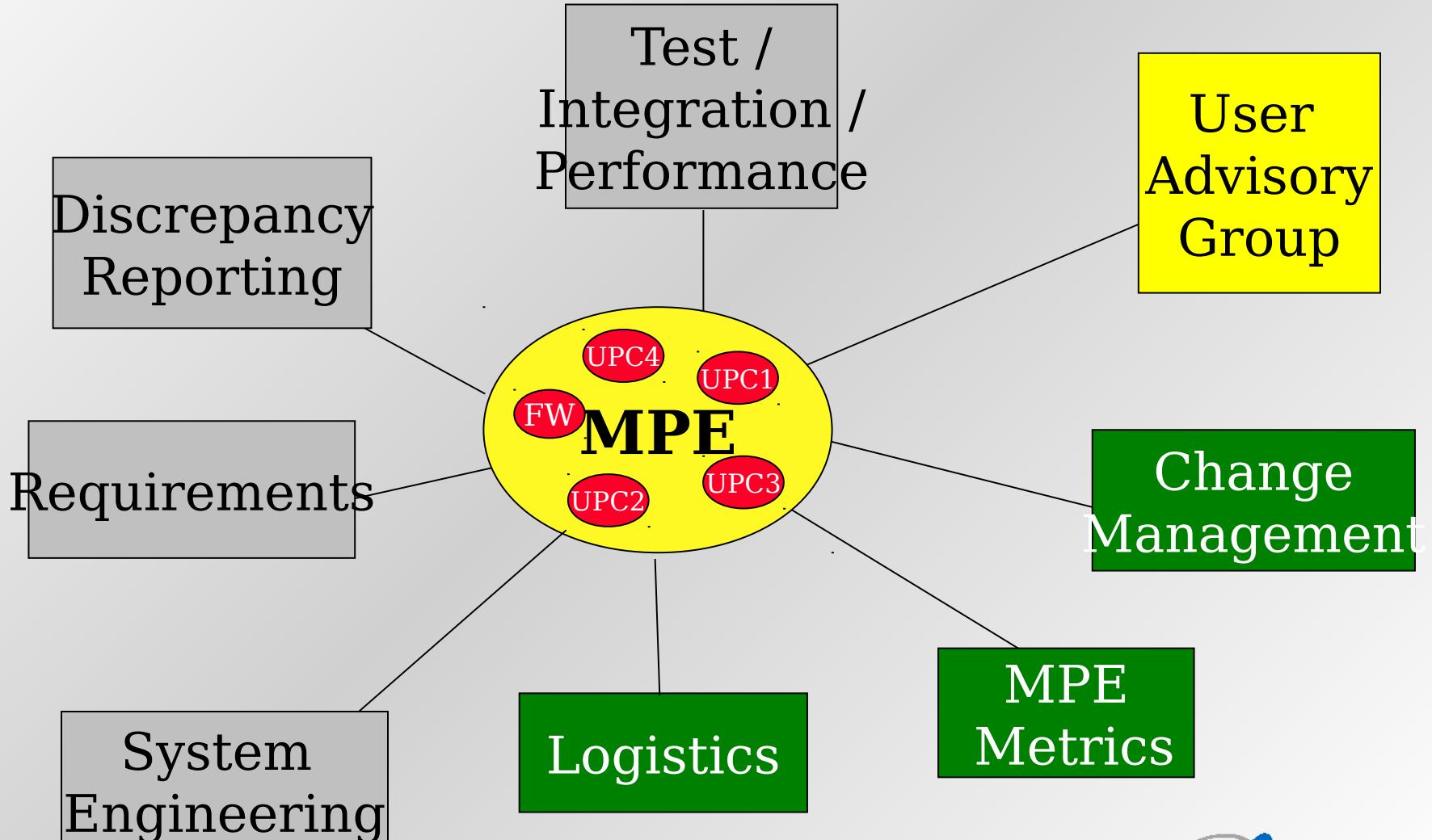


**Questions?**



# **MPE Integration**

## **PMA281 Responsibility**





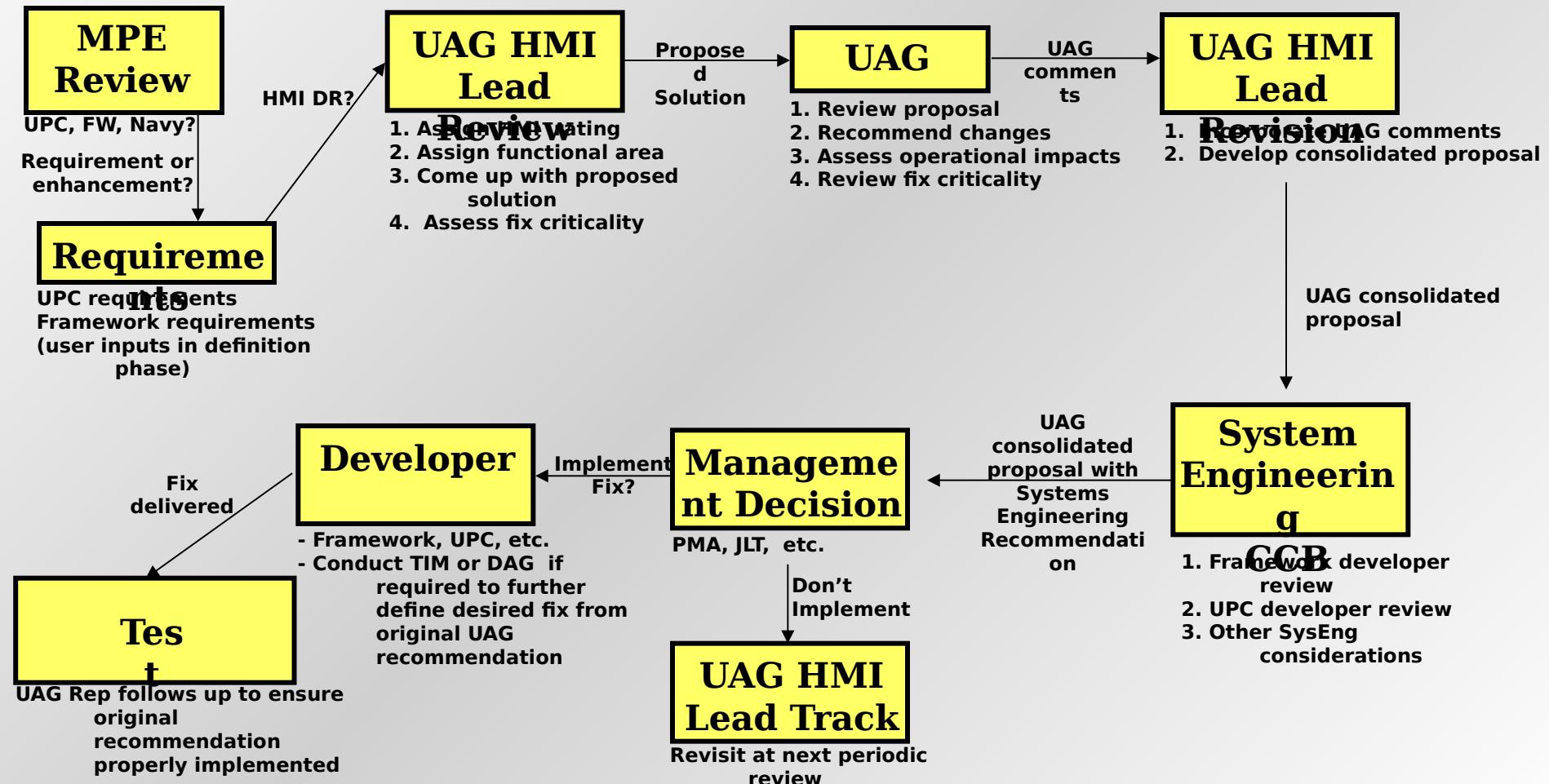
# The UAG and HMI



- **JMPS UAG composed of DT / OT aviators, mission planning model managers, weapons school reps**
- **Human Factors is just one facet of what the UAG does**
  - **A process within the existing UAG**
- **This brief focuses on the UAG and HMI process only**

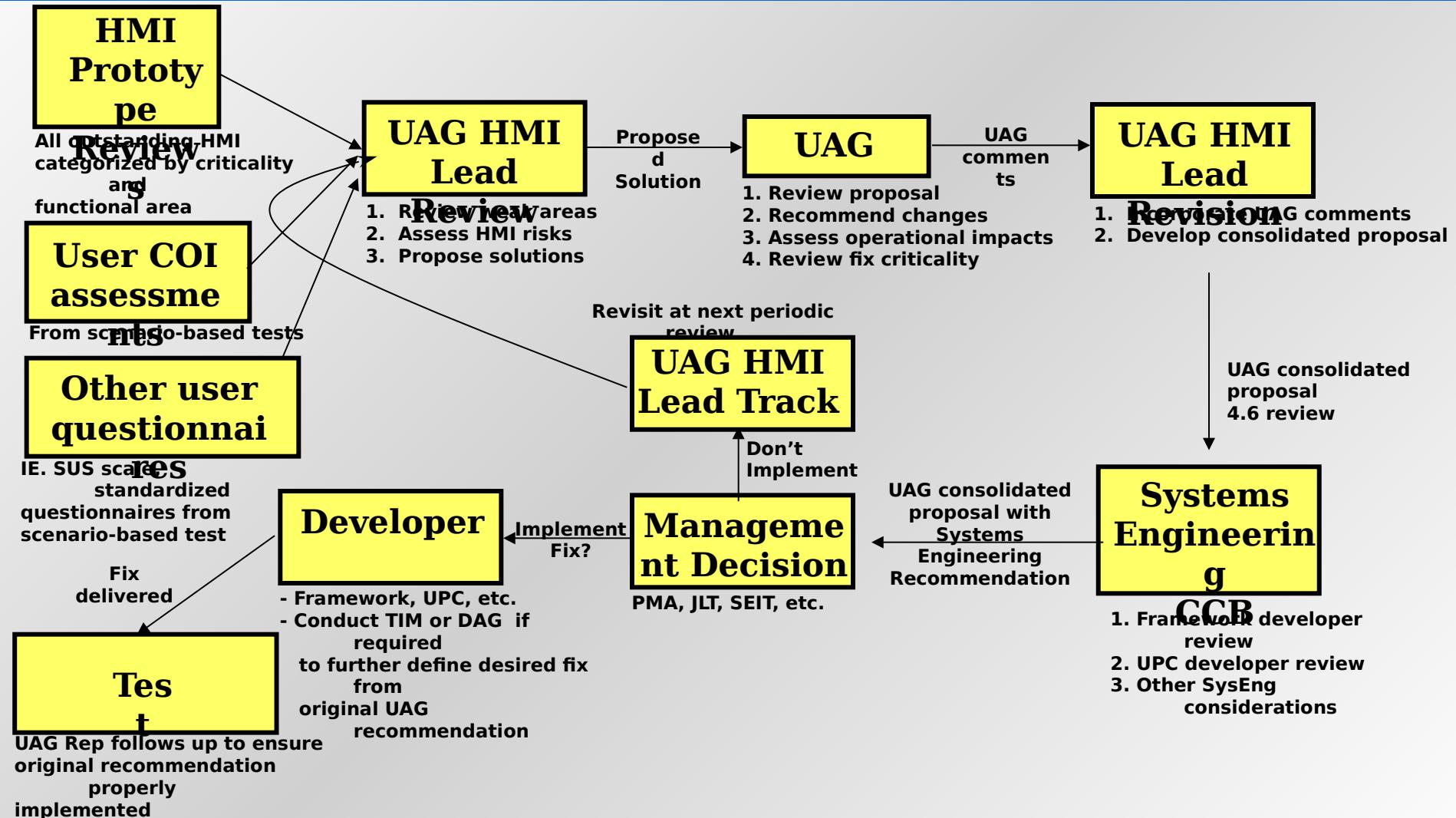


# UAG HMI Fix Process





# UAG Periodic Design Review





# **UAG: Reviewing Proposals**



- Discussions/Meetings**

- Most discussions via email or telecons conducted as required to address major issues**
- Convene formal meetings (TIMs, DAGs) as required**
  - to resolve any issues needed by UPC or framework developers
  - Review future JMPS version design proposals / requirements
- Periodic face-to-face meetings at JMPS TIMs/DAGs as scheduled, or at formal scenario-based test events**
- Conduct periodic HMI review/assessment at the MPE level**



# **UAG HMI Tools (1)**



- **Major validation tests:**
  - **MPE-based user assessments of system suitability across COIs**
  - **Repeatable, quantifiable user questionnaires based on TEMP**
  - **Standardized data reduction to “risk”-based charts**
  - **Data collected at each scenario-based validation test and track trends over time**
  - **Other standardized questionnaires to address other areas (per DT Assist Test Plan / Dec. 2003)**



# **UAG HMI Tools (2)**



- **DR quantization / rack-and-stack**
  - **System Usability Scale (SUS)**
  - **Modified Cooper-Harper scale (MCH)**
  - **Bedford Workload Rating scale (WLR)**



# **UAG: HMI Tools (3)**

- **System-level tools**

- **Revised JMPS Style Guide**
  - Basic JMPS user interface methods & standardization
- **UPC Interface Integration Standards Guide**
  - New guide standardizes UPC HMI interfaces and additions to basic JMPS framework, especially menus, explorer, and help



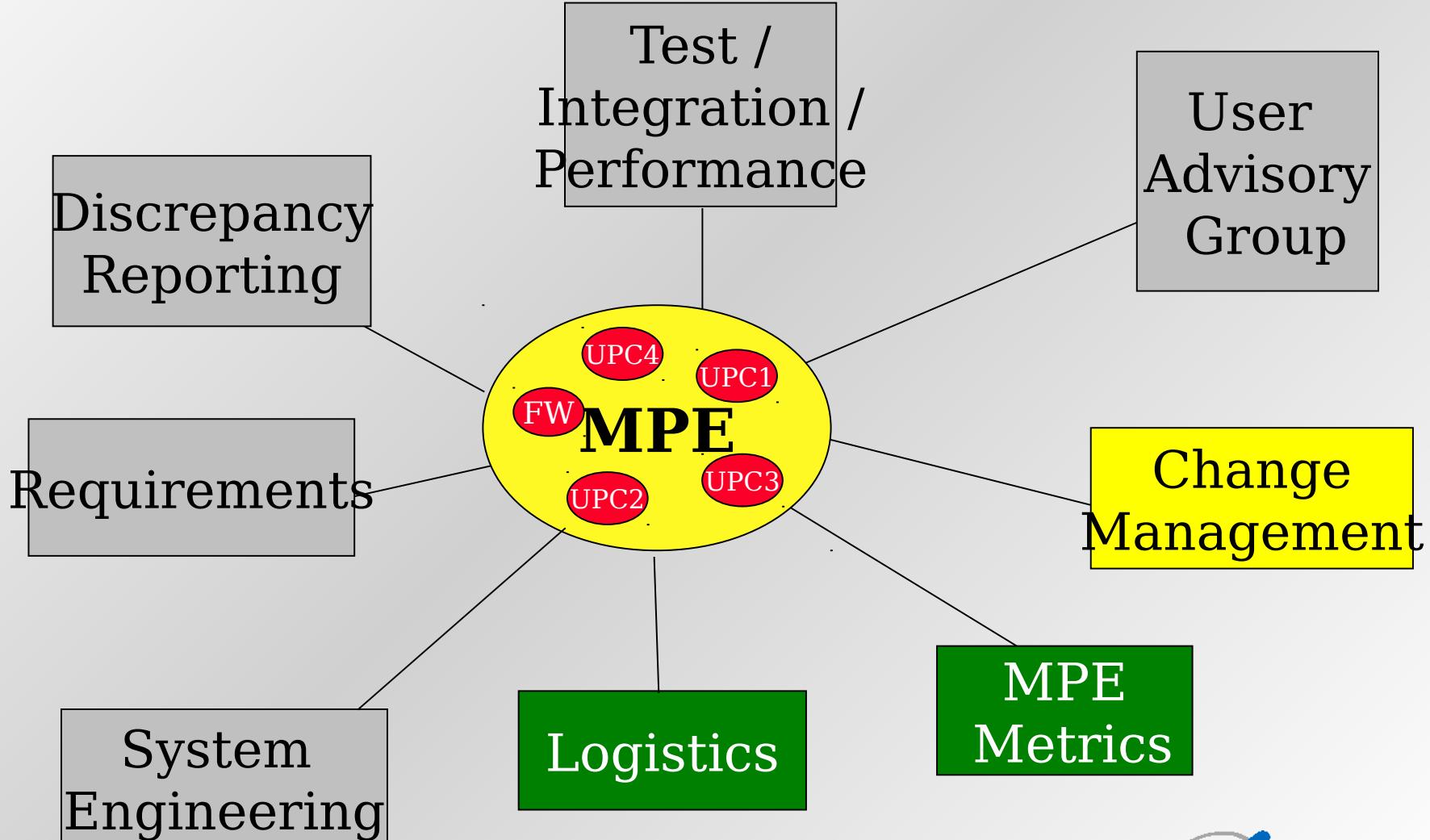
**Questions?**





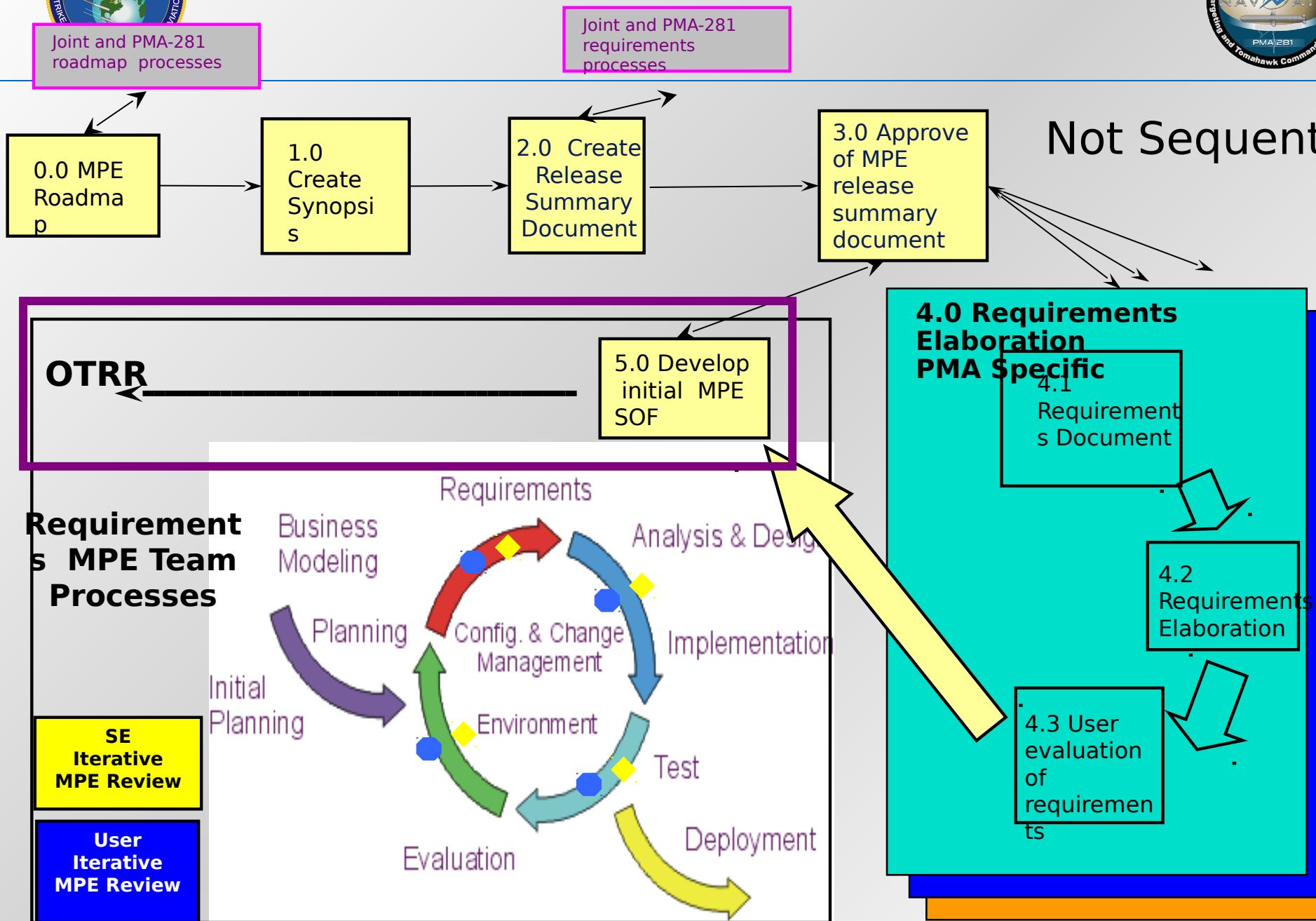
# **MPE Integration**

## **PMA281 Responsibility**



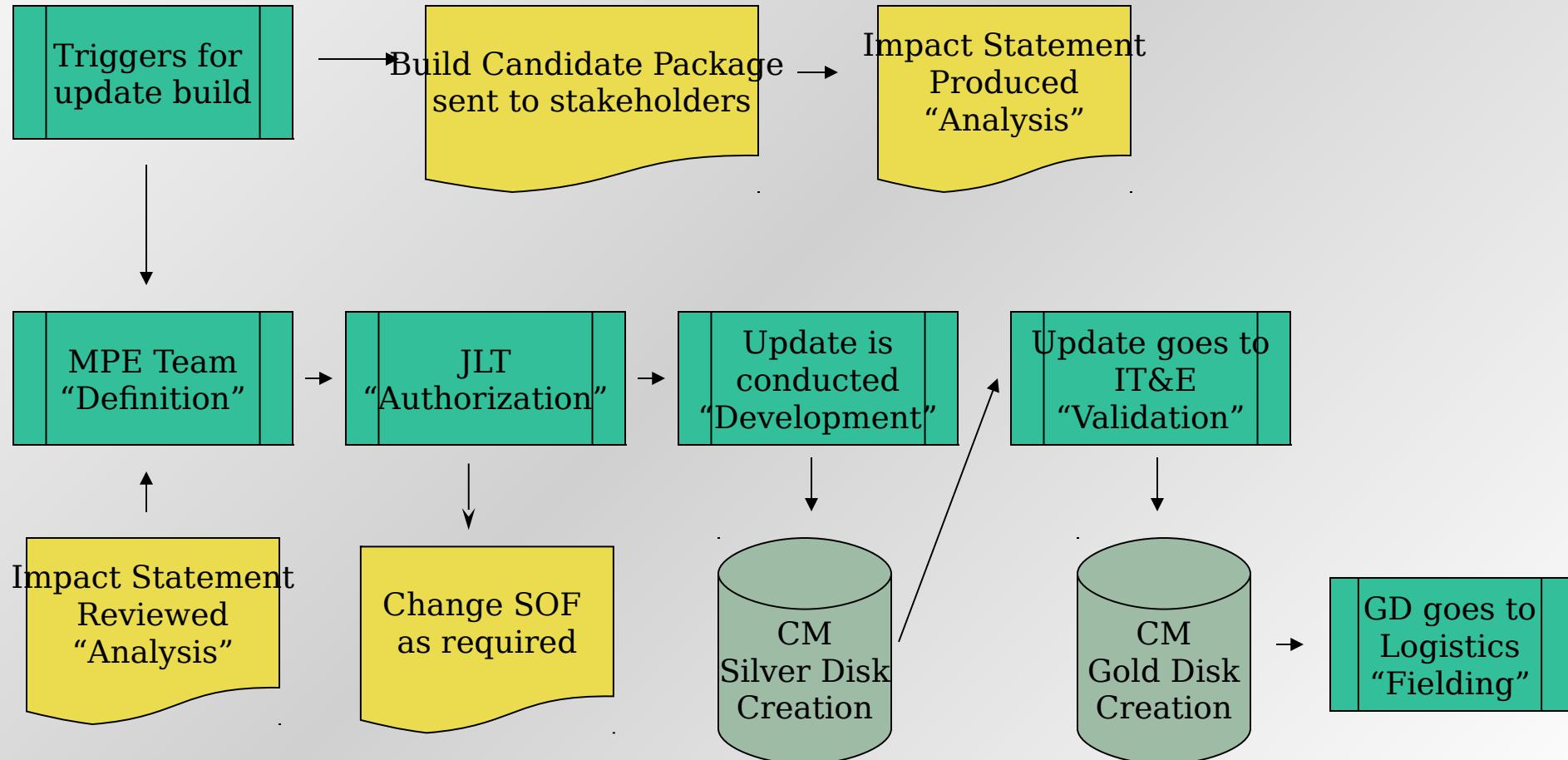


# MPE Requirements Document Flow





# Change Management "Top View"



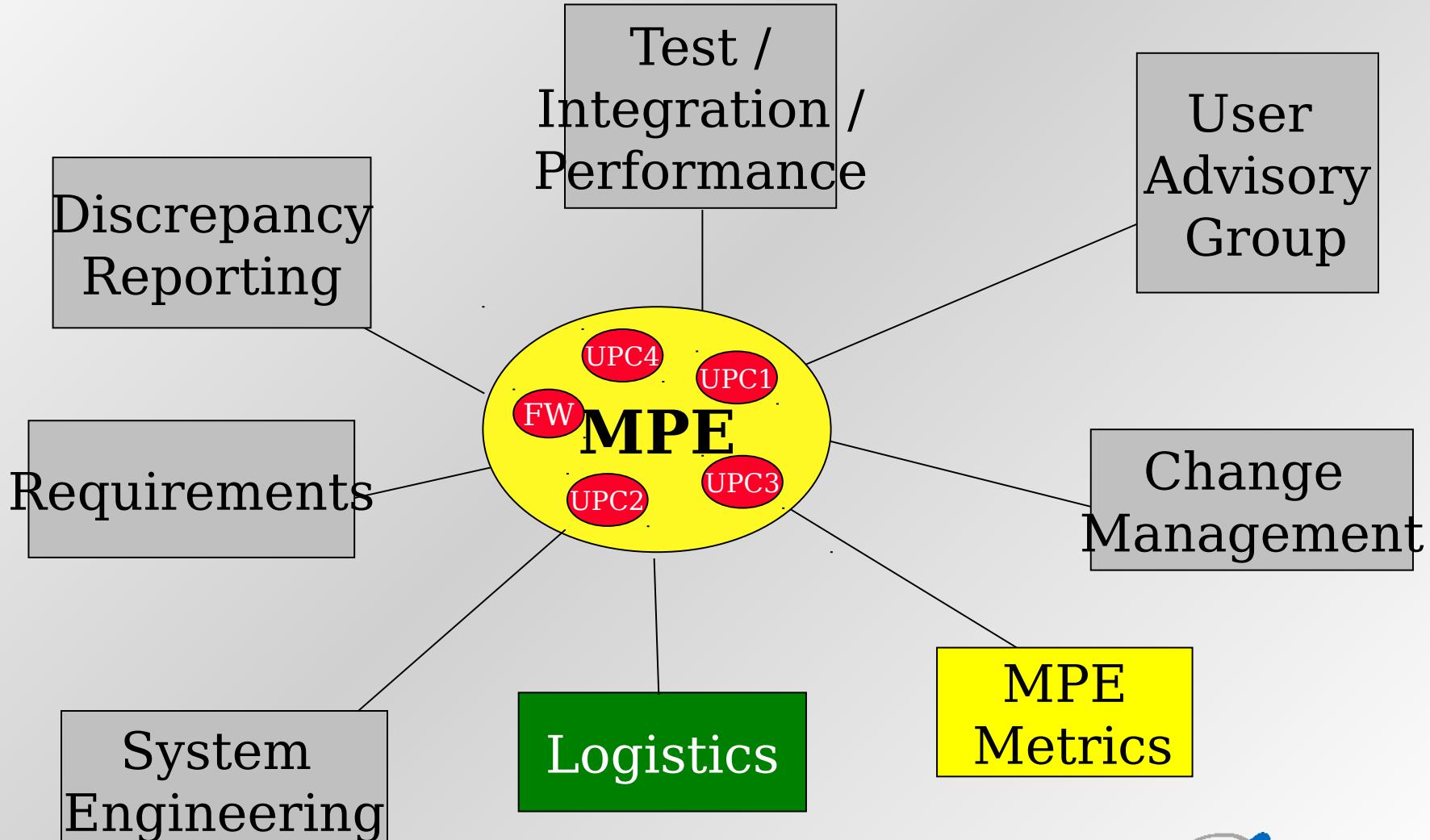


**Questions?**



# **MPE Integration**

## **PMA281 Responsibility**





# Metrics: Standard Process for System



- Metrics collected at System level via the following
  - » Framework
    - DR's, Performance, Stability, Memory Usage
  - » UPCs
    - Memory Usage
- Metrics Reported at System Level to support
  - » ORD Requirement Thresholds
  - » TEMP Thresholds
  - » SOF Analysis (Framework Only)
- PMA-281 relied on UPCs to capture metrics in support of thresholds indicated
  - » Post software freeze (ITCRR)
  - » In between major events in IT&E



# **Metrics: Improved Process**

- **Collect Metrics per MPE**
  - **Continual Incremental Integration**
    - Identify MPE specific anomalies sooner
- **Collect System DRs (Navy System DB)**
  - **Framework DRs**
  - **UPC DRs**
- **Combining test data measured for a complete System Evaluation**



# Management by Metrics

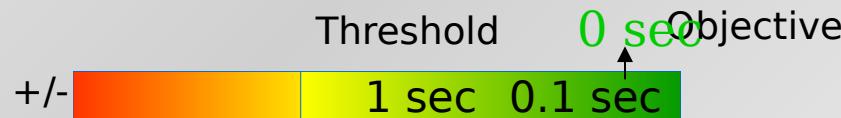
- **What is the benefit of capturing “system” metrics**
  - **Provides trigger mechanisms to Risk System**
  - **Provides a data driven mechanism for potential process adjustments**
  - **Trend Analysis**
- **Example**
  - **MTBOMF Trend Analysis**
    - Continual Incremental Analysis versus major event driven



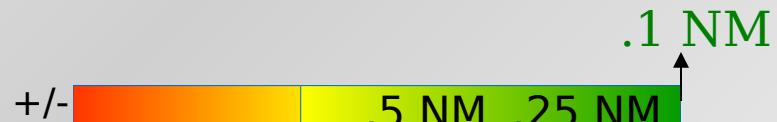
# E-2C MPE: MOE/MOS Compliance Data Accuracy



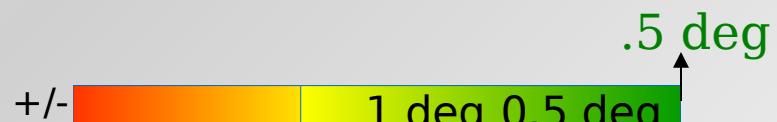
Error in calculation of the flight leg time of a route or route segment (KPP)



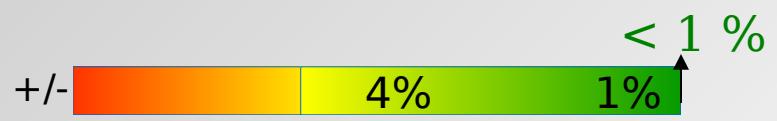
Error in calculation of the leg distance of a route or route segment (KPP)



Error in calculation of the true and/or magnetic leg heading of a route or route segment (KPP)



Error in calculation of the total fuel used for a route or route segment (KPP)



Error in the storage and retrieval of route, waypoint, or target position data. (not PGM targeting data)



Loss of accuracy of mission data downloaded to a DTD.



Loss of accuracy of PGM targeting data from data entry to downloaded DTD. (KPP)



\* Data provided by E-2C UPC



## E-2C MPE: MOE/MOS Compliance



### Parameter

Threshold

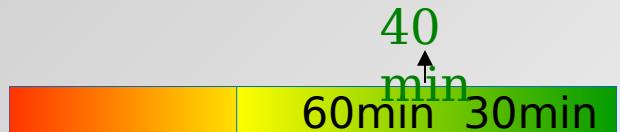
N/A

Objective



Average time to plan a multi-platform interdiction mission from receipt of ATO to the downloading of mission data to a DTD

Average Time to Plan a Flight that includes a MTR, prepare IFR flight planning material to and from the MTR including producing kneeboard cards and DTD Load (KPP)



Average Time to Plan GPS Guided Munitions including target, route, GPS key and almanac data loaded in a DTD

N/A

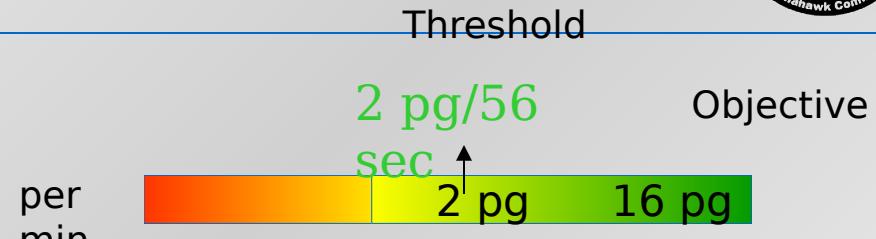




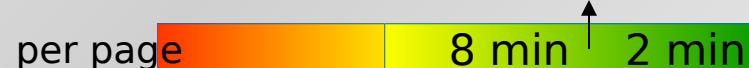
# E-2C MPE: MOE/MOS Compliance Mission Support



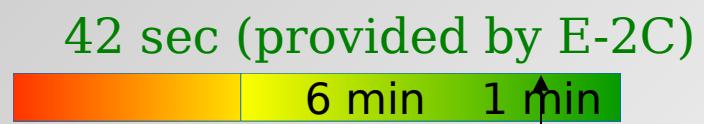
Average time to print black and white kneeboard cards.



Average time to print color strip charts/mission materials.



Average time to transfer a mission including moving map, avionics, DAFIF, route, and other navigation data to an initialized DTD.



Average time to transfer a mission including moving map, avionics, DAFIF, route, and weapon data to an initialized DTD.



Display and refresh rates for maps without overlays at the same scale as corresponding paper map scale.



Average time to transfer a theater map load to a DTD



\* Data provided by E-2C UPC



# E-2C MPE: MOE/MOS Compliance Interoperability-Critical IERs



Export Mission Data to DTD (KPP)

Threshold  
Objective  
42 sec

12 min ↑1 min  
N/A

30 min15 min

Request, Import GPS Almanac Data (KPP)

8.1 min \* worst case  
scenario  
10 min 3 min

Request, Import Intelligence Enemy OB Data (KPP)

N/A  
60 min15 min

Request, Import Target Planning Data (KPP)

N/A  
30 min15 min

Request, Import Mensurated Points (KPP)

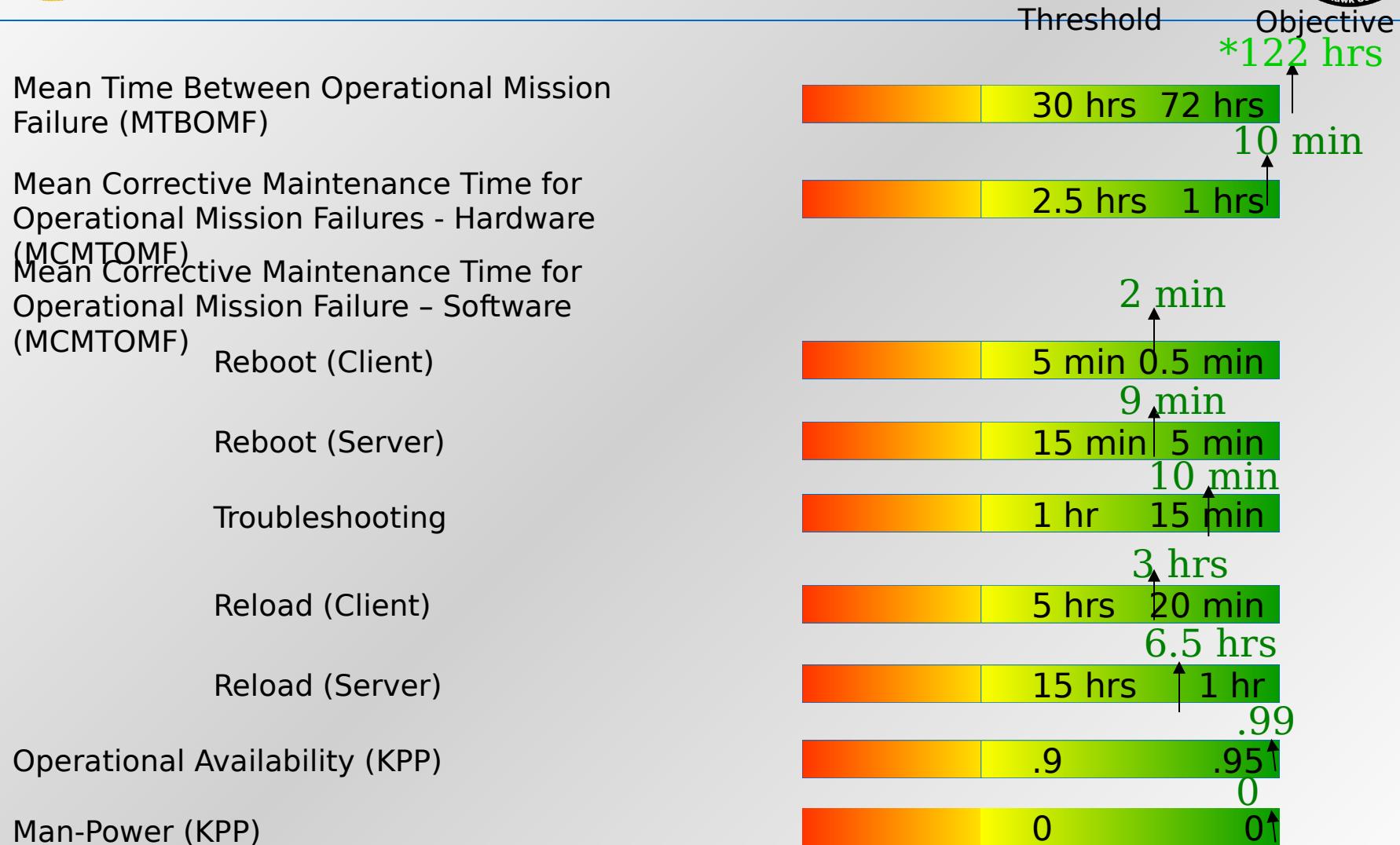
N/A  
30 min15 min

Request, Import GPS Crypto Keys (KPP)

\* Data provided by E-2C UPC



# E-2C MPE: MOE/MOS Compliance Reliability/Maintainability/Availability



\*E-2C UPC reports MTBOMF of 129 Hours



# E-2C MPE: TEMP

## Critical Technical Parameters



Plan Multi-Platform Interdiction Mission/Plan Military Training Route Timing Accuracy - Timing Accuracy per leg

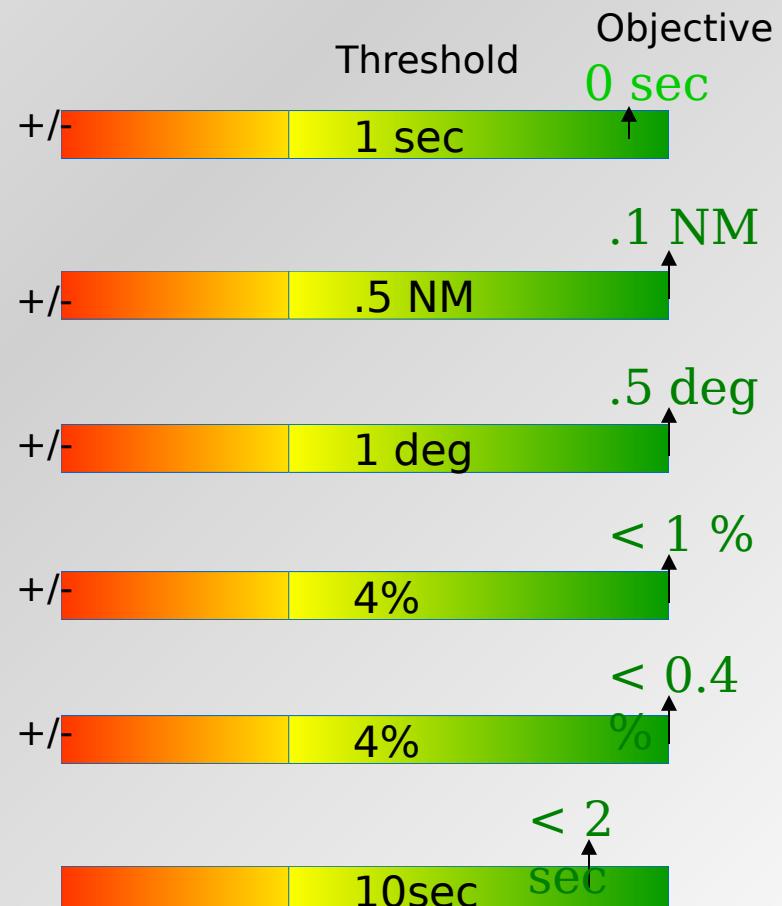
Plan Multi-Platform Interdiction Mission/Plan Military Training Route distance Accuracy per leg

Plan Multi-Platform Interdiction Mission/Plan Military Training Route Heading Accuracy per leg

Plan Multi-Platform Interdiction Mission/Plan Military Training Route Fuel Accuracy Total

Plan Multi-Platform Interdiction Mission/Plan Military Training Route TOLD Calculation Accuracy

Plan Multi-Platform Interdiction Mission/Plan Military Training Route/Plan GPS Guided Munitions - Time to generate and display level 1 DTED (Shaded Relief, 100NM x100NM, Equal Arc)





# E-2C MPE: TEMP

## Critical Technical Parameters cont.



Plan Multi-Platform Interdiction Mission/Plan Military Training Route/Plan GPS Guided Munitions - GIS tools calculate the bearing between 2 points

Plan Multi-Platform Interdiction Mission/Plan Military Training Route - Error in the storage and retrieval of route, waypoint, or target data (not PGMs)

Plan Multi-Platform Interdiction Mission/Plan Military Training Route /Plan GPS Guided Munitions - Map Display/Refresh rates using minimum hardware

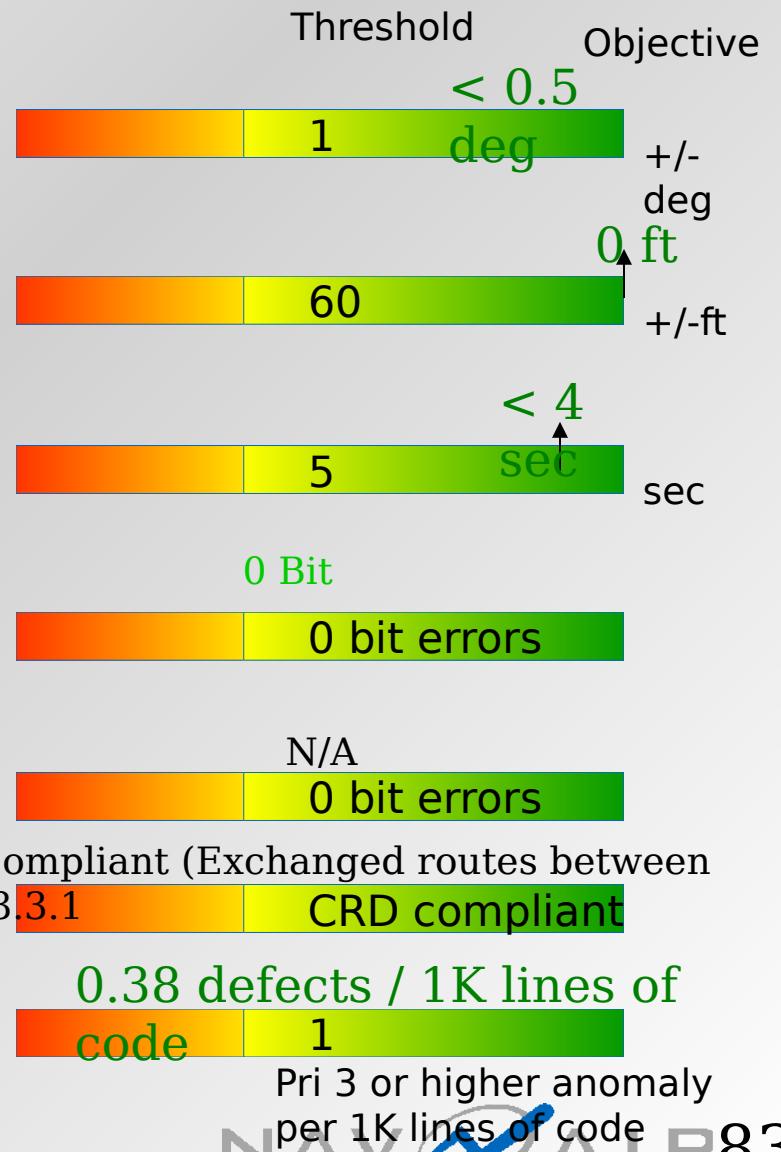
Plan Multi-Platform Interdiction Mission/Plan Military Training Route - DTD download accuracy for mission data

Plan Multi-Platform Interdiction Mission/Plan GPS Guided Munitions - DTD download accuracy for PGM targeting data

Interoperability/Collaborative Connectivity - Route Exchange

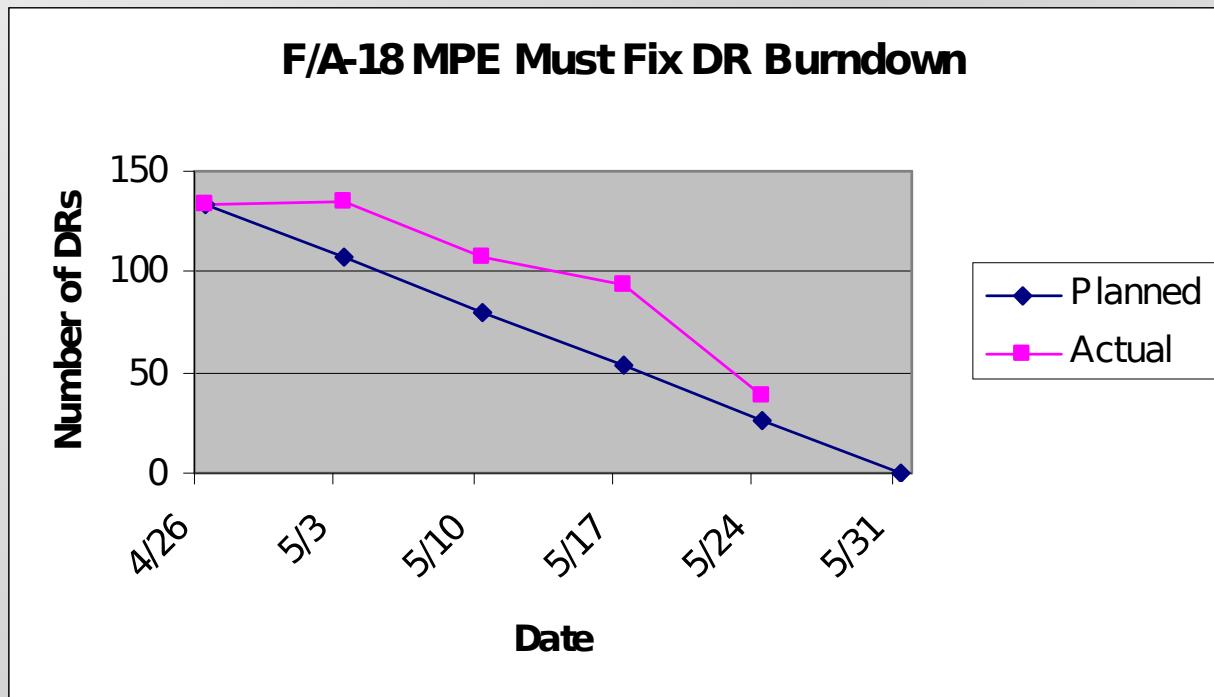
Software Maturity - Software Anomalies

\* Data provided by E-2C UPC





# Must Fix DR Burndown Rate: F/A-18 MPE





# **MPE Metric Examples**

- **MOE/MOS Measurements by MPE**
- **Must Fix Burndown Rate by MPE**
- **Requirements Volatility (SOF)**
- **Others?**

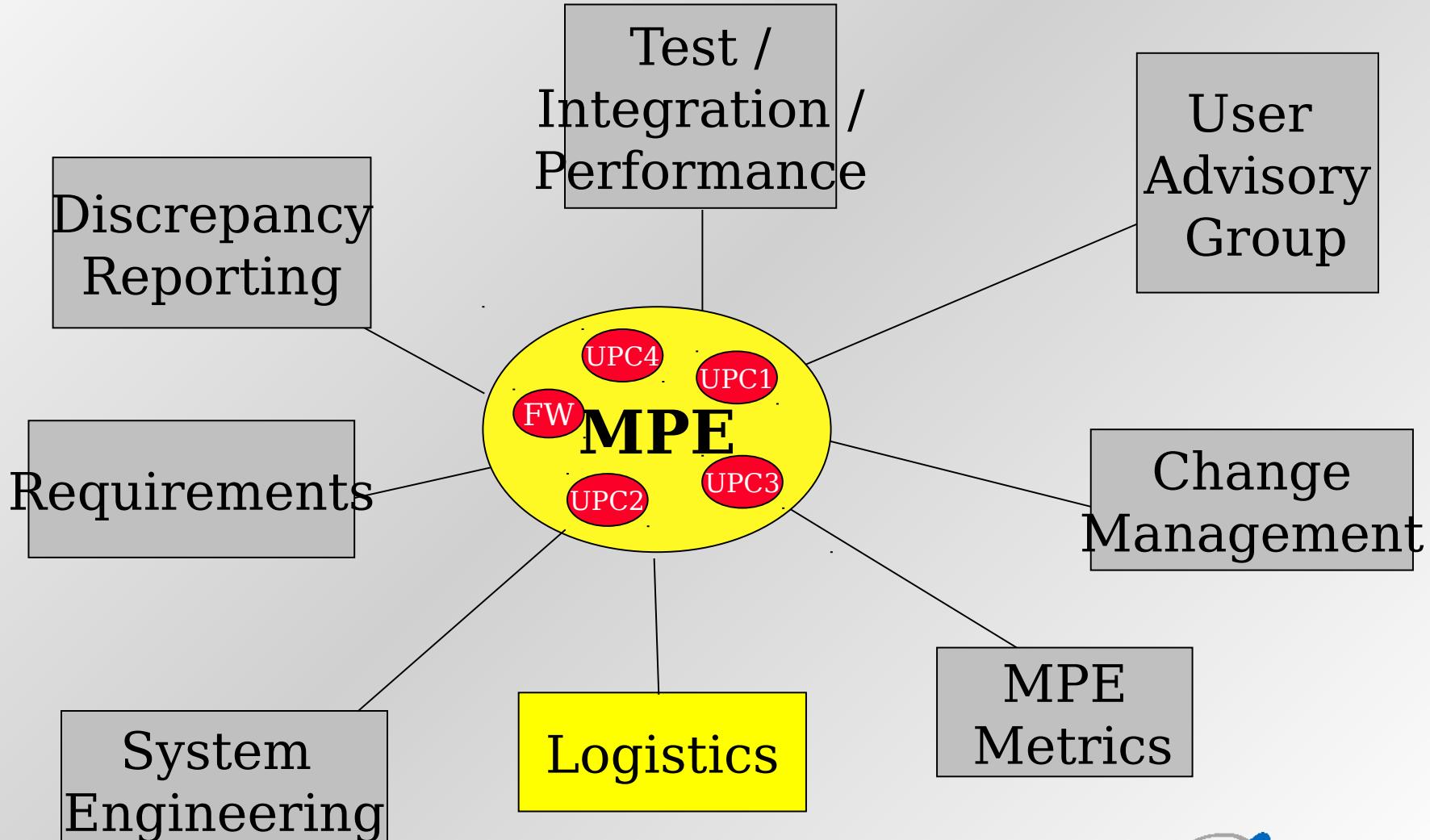


**Questions?**



# **MPE Integration**

## **PMA281 Responsibility**





# TOPICS



- **Issues**
- **Hardware**
  - **Procurement**
  - **Fielding Plan**
- **Documentation**
- **Training**
  - **OT**
  - **Train the Trainers (Weapons School/FRS)**
  - **Fleet Training**
- **Customer Support**



# Issues



- **UPC development of appropriate training materials for OT and Fleet training**
- **UPC funding for multiple OT training events**
- **UPC funding for Train-the-Trainer training (schoolhouses)**



# JMPS Hardware Procurement

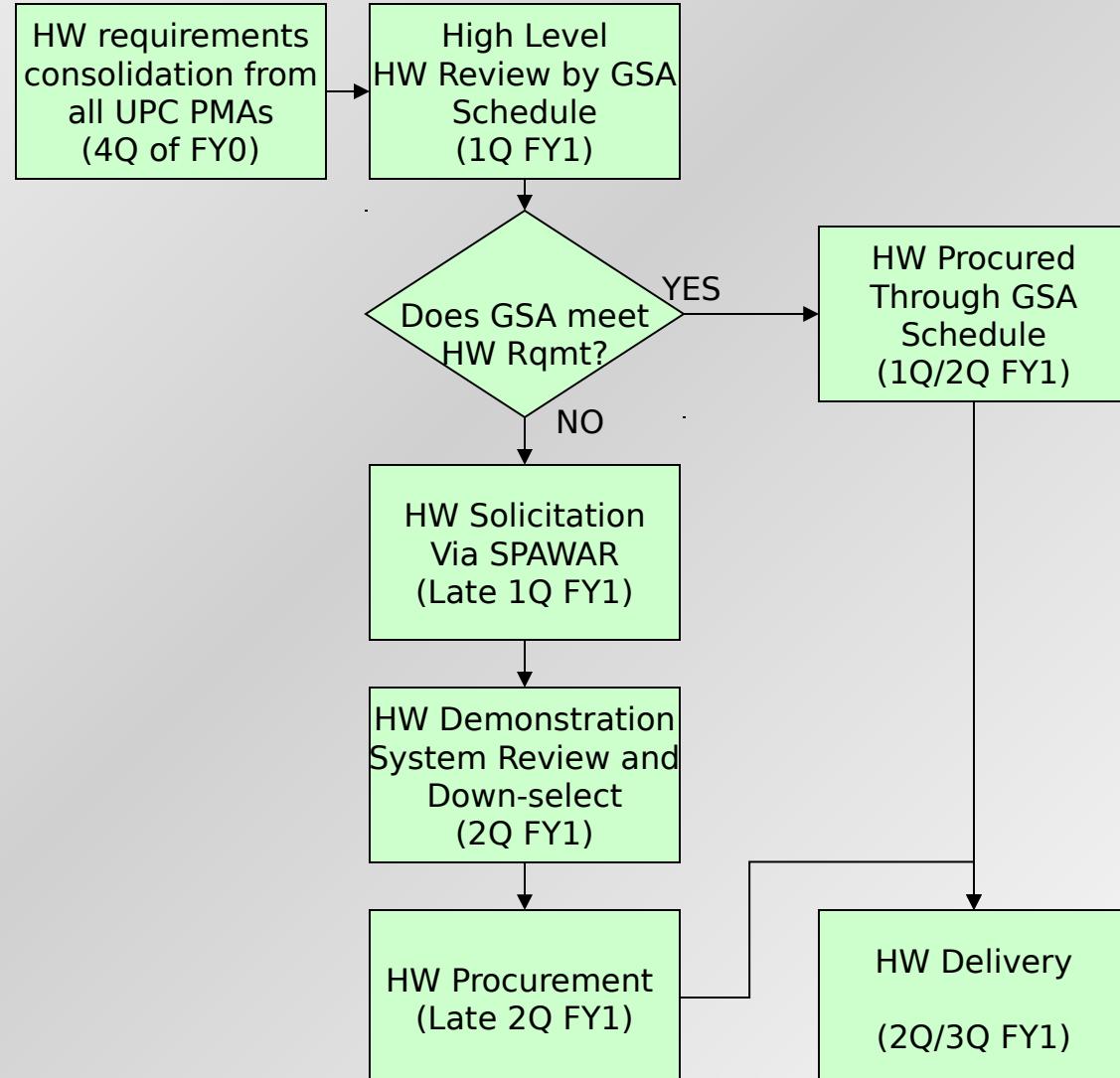


- **Process assumptions**

- **Procurement completed yearly**
- **Provides for a 5-6 year refresh (based on attrition)**
- **Funding must be in place prior to initiation of High Level Hardware Review**
- **Provides hardware for JMPS/PFPS for Navy and Marine Corps**
- **All common hardware provided by PMA-281**
- **Any UPC unique hardware is provided through individual PMAs**



# JMPS Hardware Procurement Process



Status



# JMPS Hardware Fielding Plan

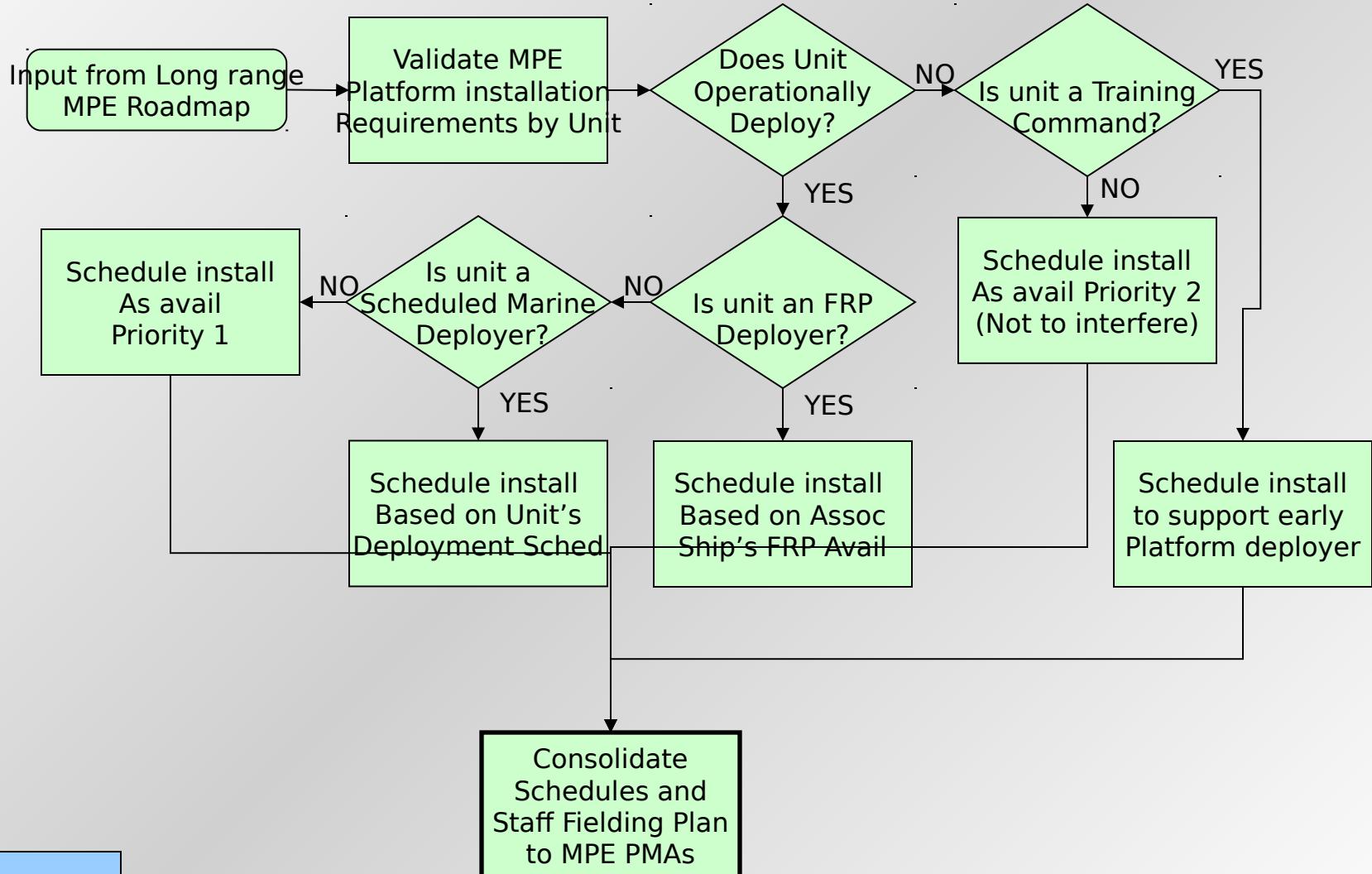


## • Fielding Plan Assumptions

- Only units that have the appropriate platform version/OFP will be fielded (i.e. - E-2C will initially field for GRIIIm RePr only)
- All Navy/Marine Corps units associated with a ship will be fielded in accordance with their associated ship's FRP availability
- Other Navy units will be fielded in accordance with their respective deployment schedules
- All other Marine units will be fielded in accordance with their respective deployment plans (UDP, TEEP, Etc.)
- All training commands will be fielded to support the above deployments



# JMPS Hardware Fielding Plan Process



Status



# JMPS Documentation

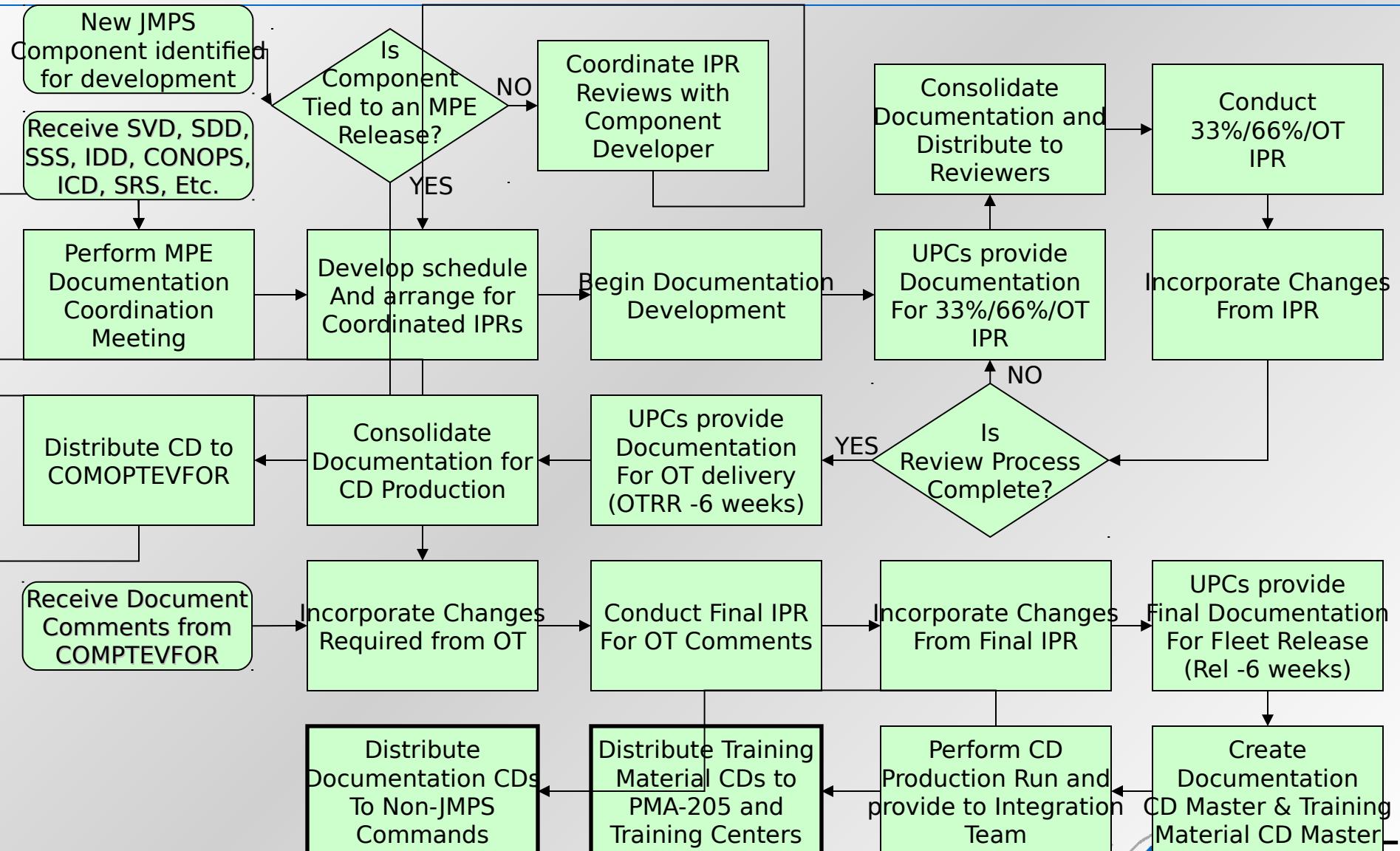


## • Process Assumptions

- All documentation will be distributed through PMA-281's ISEA (SPAWAR Philadelphia)**
- UPCs will provide documentation (including training material) for 33%, 66%, OT & Final Reviews**
- UPCs will have their OT documentation (in MS Word or Adobe PDF) to SPAWAR Philadelphia no less than 6 weeks prior to their MPE's OTRR**
- SPAWAR Philadelphia will convert Word documents to PDF (training materials will remain in Word format)**
- Documentation CDs will consolidate Framework and all MPE related documents organized by MPE**



# JMPS Documentation Process





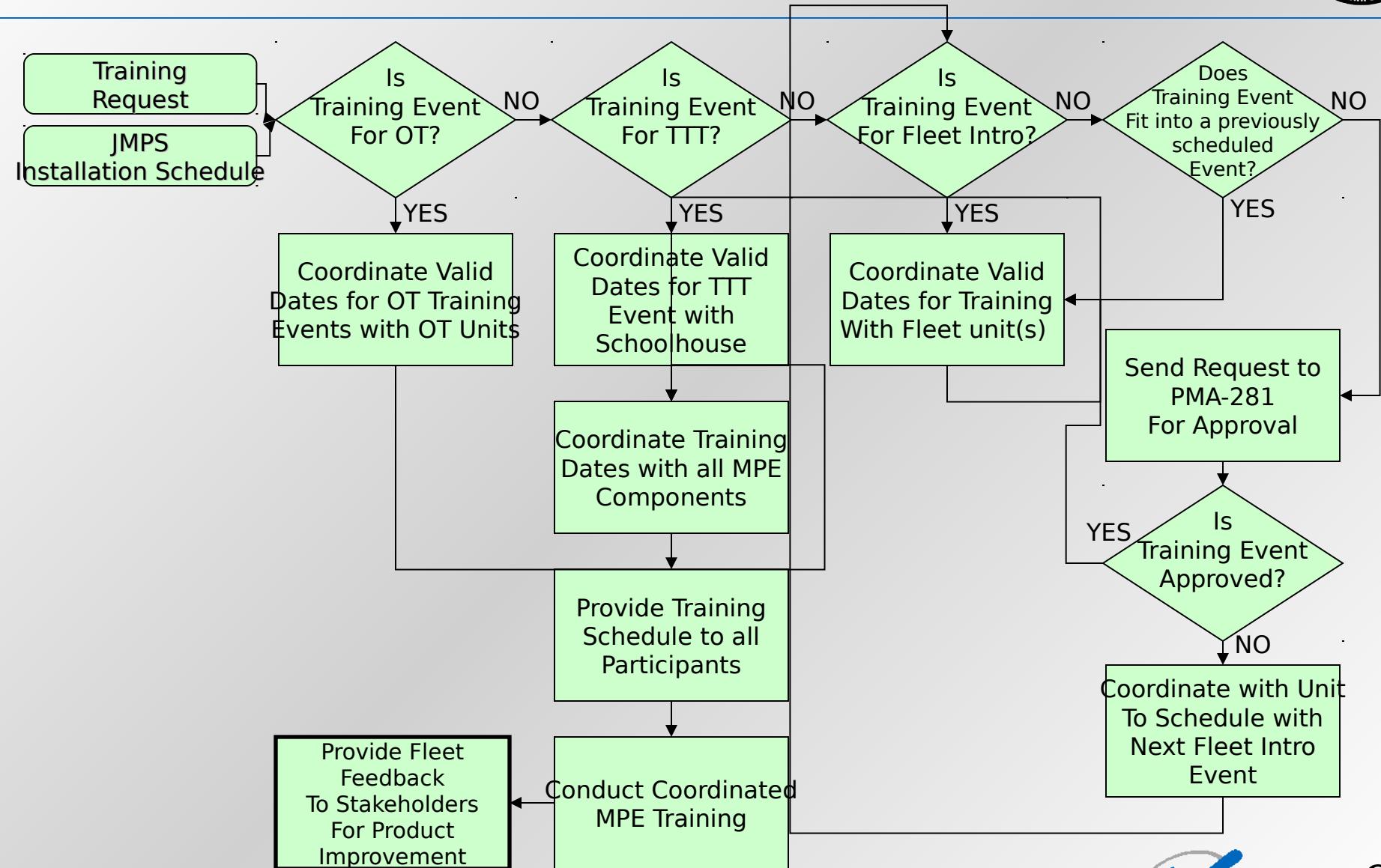
# JMPS Training



- **Process Assumptions**
  - **Training Scheduling**
    - OT
      - » Valid dates will be coordinated initially with each OT Command
      - » Actual training dates will be determined with each MPE UPC
    - Weapons Schools/FRS/WTU
      - » Advanced level training to create a cadre of instructors at various training locations
      - » Occurs prior to fleet training; sometimes before the end of OT
      - » Normally consolidated at one location and commands send their JMPS Instructors
      - » Necessary to get weapons schools and FRSs self-sufficient for mission planning
    - Fleet
      - » Training dates determined by FRP Avail and/or scheduled several months in advance
      - » Training dates promulgated to each MPE UPC for scheduling purposes
  - **SPAWAR Philadelphia will provide all Framework training outside of formal school training**
  - **PMA UPCs are responsible for all UPC training (unless other arrangements have been made)**



# JMPS Training Process





# JMPS Training



## • Actions

- PMA-281 to coordinate with PMA-205 to clarify responsibilities for fleet training curriculum**
- PMA-281 to engage fleet training commands to validate acceptable mission planning training curriculum**
- PMA-281 to engage fleet training commands to gain their “buy-in” to fleet mission planning training needs**



# JMPS Customer Support

- **Customer Support Process is currently under revision**
- **Customer Support Desk is provided through SPAWAR Philadelphia**
  - **24/7/365 support for fleet users**
  - **Tiered Support provides greatest capability with minimal cost**
    - Level 1 - Web Site access (FAQs, Discussion Groups, current issues, etc.)
      - » NIPRNET and SIPRNET (NIPRNET info on SIPRNET also)
    - Level 2 - Direct Telephone support: provides Hardware, Framework and limited UPC support
    - Level 3 - Indirect Telephone support: advanced UPC support
      - » UPCs should provide Contact information for advanced UPC support (POC information should plan for access 24/7/365)
      - » Or UPCs can fund SPAWAR Philadelphia to provide a SME to answer detailed UPC questions
  - **Regional Site Representatives**



# JMPS Logistics POCs



- **Documentation**

- **Kevin O'Malley, SPAWAR Philadelphia**  
**(omalleyk@spawar.navy.mil)**

- **Training**

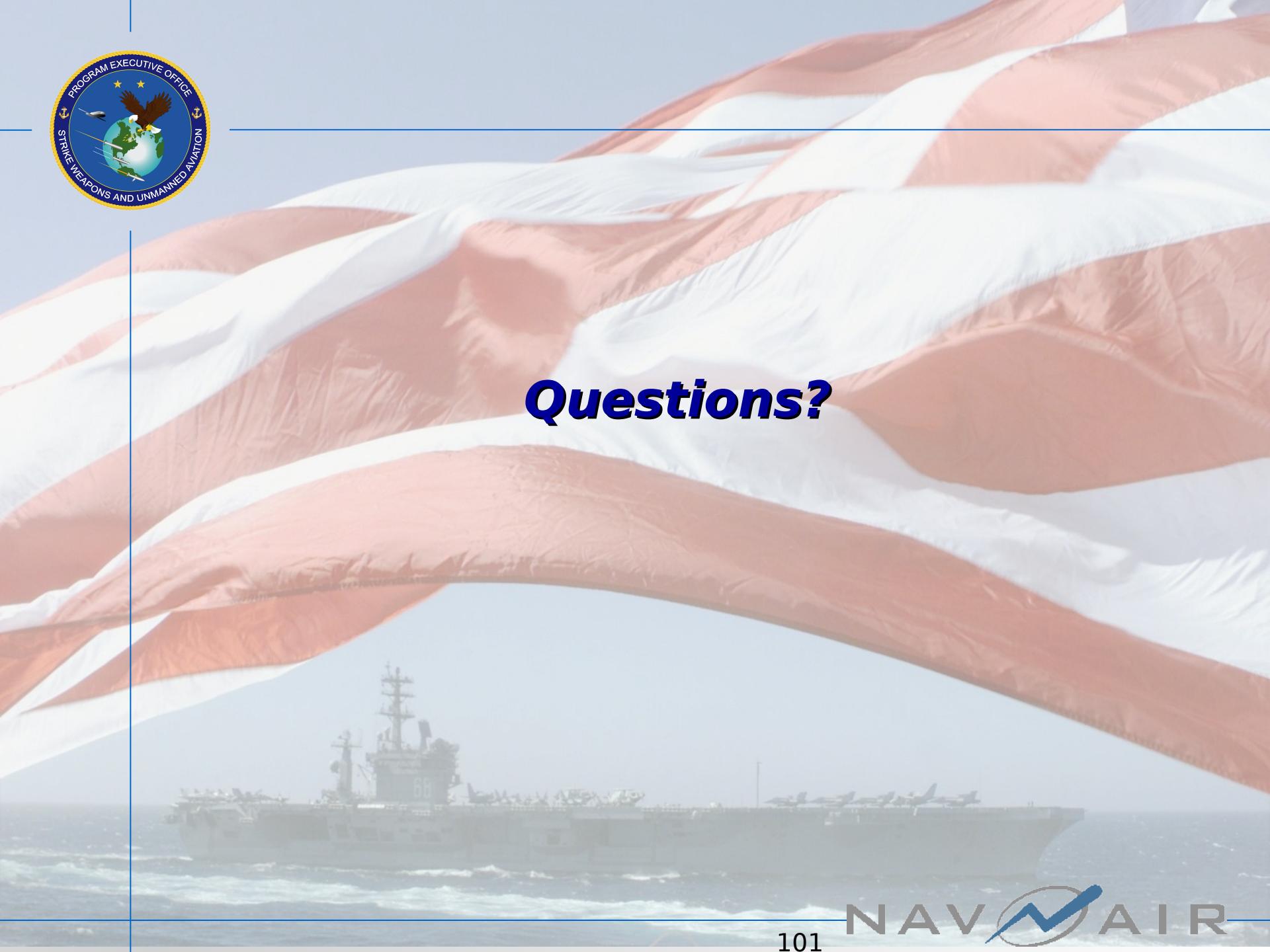
- **Kevin O'Malley, SPAWAR Philadelphia**  
**(omalleyk@spawar.navy.mil)**
  - **Wayne Burroughs, PMA-281** (**ervin.burroughs@navy.mil**)

- **Fleet Support**

- **Bob Grant, SPAWAR Philadelphia**  
**(robert.j.grant@navy.mil)**

- **Other Logistics**

- **Tim Boyce, PMA-281** (**boycet@spawar.navy.mil**)

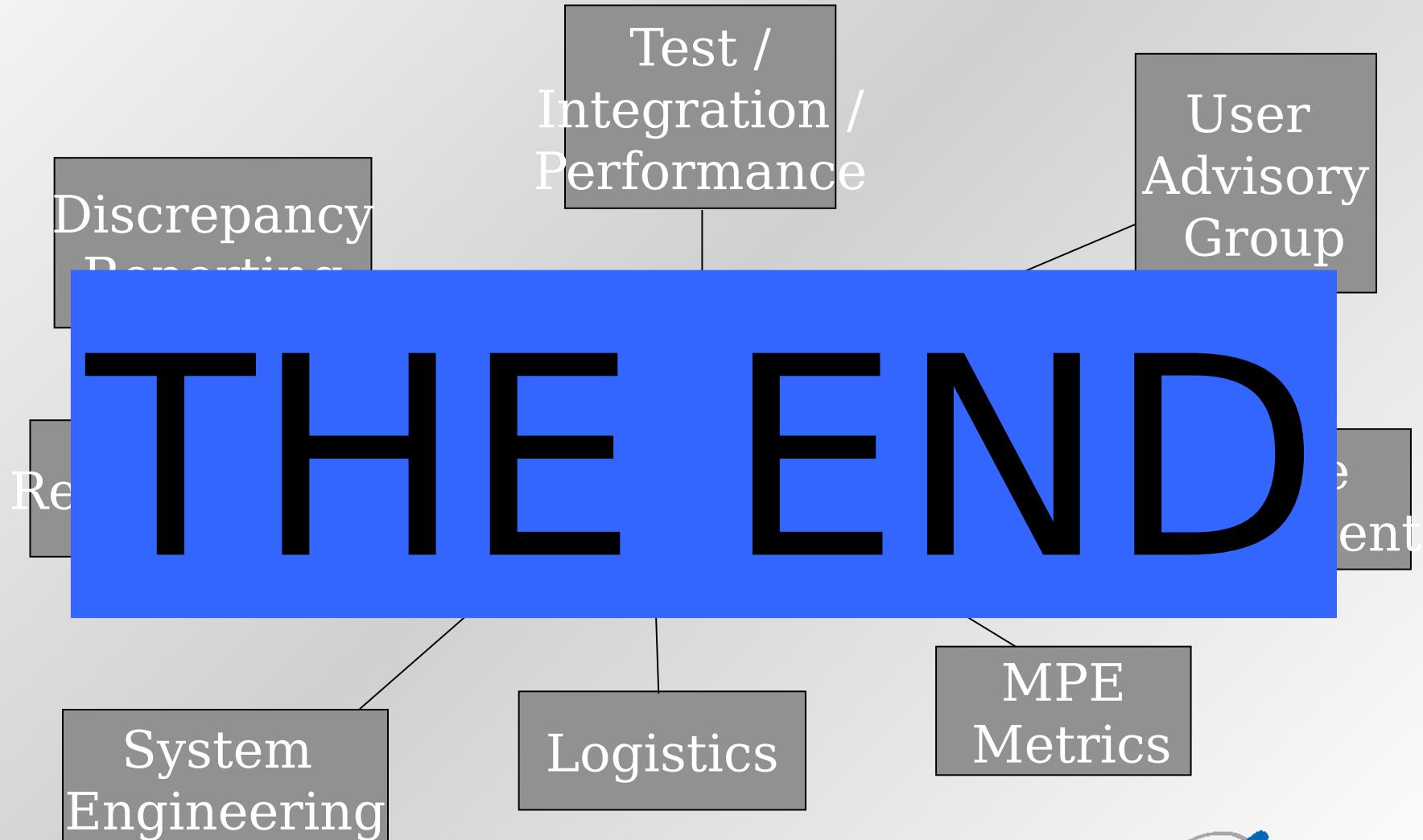
A large American flag is displayed in the background, its red and white stripes flowing across the frame. Below the flag, a dark aircraft carrier is visible on the water, with several aircraft on its deck. The sky is overcast.

# Questions?



# **MPE Integration**

## **PMA281 Responsibility**





***Start of Day 3***





# Agenda for the Week

## Tuesday, June 15<sup>th</sup>

- 0800 Admin Remarks
- 0815 PMA Opening Remarks
- 0830 Program Overview
- 0900 System Engineering
- 1000 Requirements
- 1200 Lunch
- 1300 Discrepancy Reporting
- 1600 Wrap up

## Wednesday, June 16th

- 0730 Admin Remarks
- 0800 IT&E
- 1000 User Advisory Group
- 1200 Lunch
- 1300 Change Management

## Thursday, June 17<sup>th</sup>

- 0730 Admin Remarks
- 0800 Logistics
- 0900 UPC Forum
- 1200 Lunch
- 1300 Independent Review
- 1500 Wrap up



# **UPC's Presentation Order**



- **AARGM**
- **AV-8B**
- **CUPC  
(JSOW/JDAM)**
- **E-2C**
- **EA-6B**
- **ETIRMS**
- **F/A-18**
- **HARM**
- **JSF**
- **MH-60**
- **SLAM-ER**
- **TAMMAC**
- **V-22**

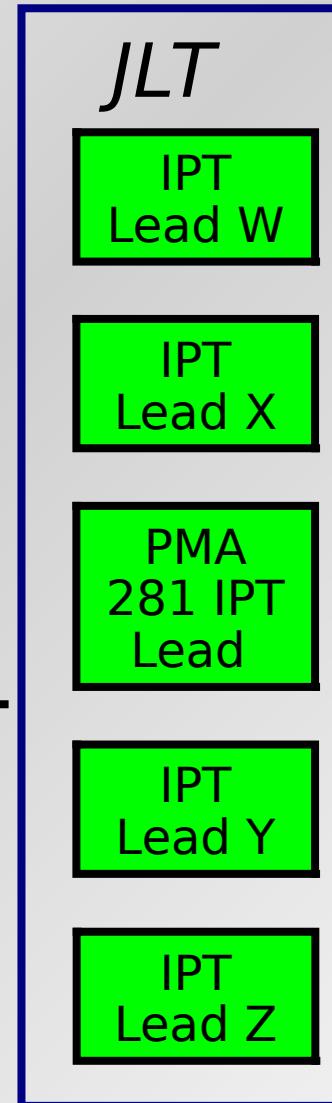
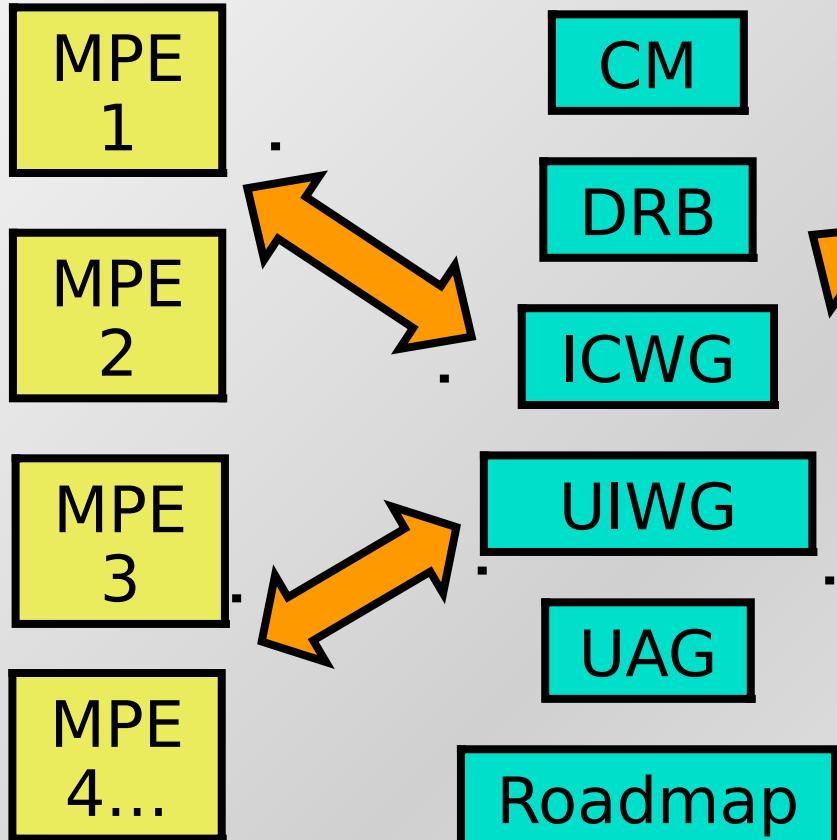


## **Overview and Next Steps**



# Decision Flow

## Process





# Take Aways

- **Provide high level plans as roadmap inputs to Pete Nelson**
  - Template provided within one week
- **Continue with current processes until modified processes are finalized and take effect**
  - JLT will develop process to assign MPE leads
  - 281 will lead development of an MPE Lead Handbook



## ***4.1 Independent Assessment***



# **JMPS INDEPENDENT REVIEW TEAM KICKOFF**

**Date**

**Stephen Kracinovich**





# **Purpose**

- **Provide as set of specific conclusions and recommendations for successful Navy J MPS (Framework & system level) OPEVAL, fielding, and support.**
- **Provide recommendation to PEOs for a MOA defining working relationships between UPCs and Framework**
- **Provide recommendation to PEOs regarding other phases**



# Why an IRT?



- SMEs can be brought in that may not always be available
- Fresh set of eyes/perspective
- More than just technical
- Not subject to program internal/external pressures
- IRT process is fairly mature
- Credibility of external perspective to backup plans briefed outside of NAVAIR



# **Areas to be Covered Framework & System level**



- **Technical**
  - **SE - Bob Tourville, Steve Kracinovich, Gary Evans, Don Varson**
  - **S/W - Rick Holcomb, Gary Graton, Paola Carrasco**
  - **HMI - Sheldon Freegard**
  - **T&E - CDR Jim Schmidt**
  - **Training - Brian Thomas**
- **Logistics**
  - **Gardo Olea**
  - **Training - Brian Thomas**



# **Areas to be covered**

- **Program Management**

- **Process**

- Gary Kessler
    - ?? (AIR-1.0)

- **Contracts**

- ??

- **Cost (phase 1 process, phase 2 ICE (FW only) )**

- 4.2?



# Scope



- **Phase 0**
  - Constructive feedback on internal TIM
  - Consensus on plan for IRT
- **Phase 1**
  - All disciplines and scope for FW
  - All disciplines and scope for system level
  - No “drill down” into UPCs
- **Phase 2**
  - ICE of FW
- **Phase 3 (optional)**
  - Drill down into specific UPCs of concern
- **Phase 4**
  - “Joint strategy with USAF/USA



# Phase I Scope

- **Staffing**
  - Number
  - Stability/phasing
  - Gov't (FW only, except "system people") & contractor (FW only)
  - Team structure
- **Requirements**
  - ORD (changes/clarifications/misalignment) and technical level
  - process
- **Risks**
  - Identification
  - Process



# Scope

- **Process**
  - Documentation
  - Implementation
- **Metrics**
  - Performance
  - Process
- **Schedule**
  - IMS
- **Cost**
  - Process
    - EVMS
  - ICE (phase 2)



# Scope



- **Contracts**
  - Requirements to use JMPS
  - ACAs
  - Directed subs



# Ground Rules



- **Open dialog**
- **Non-retribution**
- **No grenade throwing**
- **No Stump the Chump**
- **The output of this review will be part of the continuing Program Management decision making process**
- **Review of entire team effort contractor, subs, & government**
- **Interaction outside the team should be limited to getting technical input and advice from NAVAIR leadership & management. Results should wait for outbrief**
- **Interaction with other vendors should be limited to interface issues. Protect proprietary info.**
- **80% solution**
- **Shoot for consensus, but not required**



# **Method**



- **Review Team members develop baseline understanding through overview brief and background materials**
- **Develop questions to program team members based on background material, SETR checklist, competency specific checklists/questionnaires, IRT outbrief scope, OTRR checklist. Send in advance**
- **Conduct meetings between IRT SMEs and appropriate project team members (TIMs)**
- **Consolidate results in integration meeting (3 days)**
- **Brief PMA**
- **Brief PEO**



# Leadership Team

- **Provides overall coordination of the review effort**
- **Resolve issues with execution of the review as they arrive**
- **“Meets” Weekly**
- **Steve Kracinovich**
- **JMPS leader**
- **JMPS action officer**
- **Contractor(s) Leader**
- **Admin**



# Open Questions

- **Who are all of the stakeholders and how should they be involved in IRT?**
  - Requirements/resource sponsors
  - PMAs
  - OT
  - USAF
- **What level of involvement should contractors have?**
- **Do we really want to do an ICE**
- **What follow on role should IRT member play (Focus group)**



# Notional Schedule

- Coordination/planning 2 wks
- Kickoff/advance questions 1 wk
- Fact finding 3 wks
  - Weekly functional team lead meeting
- Integration 1 wk
- PM outbrief 1 wk
- Exec outbrief 1 wk
- Phase 1 complete by 16 August
- ICE (phase 2) ??



# OUTBRIEF FORMAT

- The following slides are products to be provided for the final brief by each functional team in addition to the information (sometimes redundant) briefed by the objectives leads
- Brief as a team Gov't & contractor(s)
- Shoot for consensus
- Point out when consensus cannot be reached
- Note requirements for further study



# Outbrief Format

- Briefed by each functional/sub functional lead
- Leadership team intro & summary



# **Outbrief Format**

- **Issue (description)**
- **Recommendations parsed as follows (discuss phasing):**
  - **Documents that need to be fixed ID document and change**
    - ORD(s)
    - FRD(s)
    - SRS
    - SSS
    - Contracts/SOW(s)
    - SEMP
    - TEMP
    - SPEC(s)
    - ICD(s)



# Outbrief format

- **Risks Identified**
- **Process changes identified**
- **Schedule impact**
- **Cost impact (ID resources, not funds)**
- **Metrics to be added**
- **Staffing changes/organizational changes**
- **Recommendations for further study**
  - Additional RFAs/RFIs



# **Things to be done before TIMS**

- **Identify additional independent members**
- **ID “internal” team members/roles**
- **ID admin support**
- **Develop team list**
- **ID funding (travel & labor)**
- **Share folder/team accounts**
  - IRT background documentation
- **Kickoff meeting**
- **Advance questions/documentation requests**
- **Charter (PEO (W), PEO(T), AIR-4.0) to J MPS leadership team and 4.1 next Fri and PEO/4.0 the following Thurs.**
- **Admin packet (travel info, visit requests)**
- **Example issue**
- **Detailed meeting schedule**



# ***Questions?***

## ***IRT SME comments***



# **Navy J MPS Technical Interchange Meeting 15-17 June 04**

***Thank You for being part of our  
NavMPS "Way Forward"  
Solution***

